February 28, 1931 Vol. LXXIX, No. 9

Textile World

Published every Saturday by Bragdon, Lord & Nagle Company,
Division of McGraw-Hill Publishing Company, Inc., New York

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"Define Your Objective"

FIVE years ago, TEXTILE WORLD offered, as a slogan for its industry, *"Define Your Objective."*

In explanation, it stated:

"Most of us are wandering in the dark, groping intermittently with dragons of high raw material costs, labor troubles, manufacturing difficulties, and distribution problems—tackling each opponent separately and individually to the exclusion, for the moment, of the other foes which must be met.

"Is it not possible so to define the endpoint of our business activities that we might develop a program which would include all these angles?"

It was this thought that prompted its editors, at the beginning of 1930, to set down a group of objectives which it regarded as outstandingly important for the progressive development of the textile industry—and to build its editorial program around those objectives, in order to aid in their accomplishment.

With a similar thought in mind, the McGraw-Hill Publishing Co. has prepared "A Platform for American Business," which is presented as a supplement to this issue of TEXTILE WORLD.

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In the case of the group of textile objectives, as our readers know, there was no attempt to offer a panacea, nor to present a collection of academic thoughts. The program was not represented as a product of originality. It was rather a crystallization of what we regarded as the best thought in the industry; a unification of the aspirations of the industry to help itself.

This holds equally true in the case of the McGraw-Hill platform for business in general. In the introduction it is stated: "It is the responsibility of the business press to crystallize constructive policies and to encourage progressive leadership. Therefore, the McGraw-Hill Publishing Co. desires to do its part in helping to clarify the situation and to stimulate thought and action."

Textile manufacturers will recognize, in the principles set down in this platform, the same fundamental thoughts which have been prompting their own industry during recent years, and which have gained for it a new status of respect and recognition in the business world. They will hope that all industry will make the same heroic effort, as have they, toward building a basically sound structure.

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In our first issue this year we expressed the belief that *planning* was one of the two greatest needs of the textile industry in 1931. In the introduction to the McGraw-Hill platform, this thought is emphasized: "Planning is essential for uninterrupted progress."

If the presentation and interpretation of the textile platform, and of the McGraw-Hill platform for business in general, do no more than focus attention upon this one thought, they will have accomplished the principal aim for which they were designed.

For it is only by definition of its objectives that industry, individually and collectively, can meet the challenge of the present business situation. It is only by such definition that those who believe in "the philosophy of individual enterprise and cooperative effort on which American achievement has been based," can justify their belief.

The Week in Textiles

as Reflected in This Issue

GENERAL

Research Taking Shape

Meeting of the U. S. Institute for Textile Research in New York last Tuesday resulted in a clearer picture of ways and means toward the work for which the body was formed. The desire on the part of the industry for investigation of its fundamental premises is becoming articulate. *(page 21)*

Textiles and the Microscope

Continuing his series of articles on the use of the microscope, Professor Schwarz states that textile mills desiring to make their own photo-micrographs will find that developing negatives and obtaining good prints from them are not particularly difficult procedures. *(page 33)*

To Overcome Depression

A survey of 2,000 business leaders including 188 textile men on the subject of essentials to overcome depression brought majority vote on modification of prohibition laws. Other more strictly economic factors were also stressed in the discussion. *(page 63)*

COTTON

Effects of Twist

Interesting experiments conducted at the Texas Technological College show, among other things, that the twist which gives maximum strength also gives maximum uniformity. *(page 22)*

Night Work Opponents

Walker D. Hines, chairman of the board, The Cotton-Textile Institute, in a statement regarding the successful progress of the movement against night work for women and minors, calls upon the opponents of the movement to hoist their true colors. *(page 27)*

Typewriter Ribbons

Typewriter ribbons are classified as narrow fabrics and are manufactured on rack-and-pinion looms. *(page 38)*

Bale Breaker

Simplification of design with a resulting increase of output and lowering of operating costs, is the outstanding feature of a new bale breaker. *(page 42)*

Cotton Goods Active

A high degree of activity has been evident in the cotton goods market. Some houses report a record week. Prices advances have been moderate. Operations come from many users who held back through the last four months fearful of lower prices. *(page 49)*

Cotton at New Highs

On Wednesday of this week, cotton on the New York Cotton Exchange, touched new highs with May at 11.65 and October at 12.18. Market students attribute demand from the Far East as the critical turn which started the present movement several weeks ago. Trade buying is reported. *(page 53)*

WOOL

Spindles per Operative

The problem of finding the number of worsted spinning spindles which it is most economical to assign to an operative has been tackled mathematically. Ideal routes for operatives in making their periodical visits to sides have been laid out. *(page 24)*

Wool Dyeing

For years aluminum-chloride carbonized stock has been blamed for many of the difficulties encountered in dyeing wool. Dr. Mullin recommends a simple preliminary treatment in the dye kettle as a remedy. *(page 28)*

The Textile Outlook

IN some branches of the textile field the pent up buying energy of the last three months has broken through to flood the market with orders. A number of sellers report the most active period for several years; last week for one cotton goods house broke all records. A return of confidence coupled with evidence of strength in the raw material markets, has brought action from buyers who were withholding, not for lack of needs, but for lack of assurance that lower prices could not be had for the waiting. Stability for a fair period is indicated, for textile prices have been most conservatively handled in response to larger sales. Only if raw materials slump, or too sharp a rise bring a reaction, can market students see likelihood of a general set back in the near future. Cotton goods have been the star performers lately; wool goods have a fair but narrower market; knit goods are broadening out; silks are awaiting a little more evidence of raw silk's firmness.

The Business Outlook

TELESCOPES trained on foreign affairs yield more for the optimist this week than do economic microscopes examining domestic movements. Fumbling gestures toward closer European cooperation, in politics, in agricultural problems, in finance, and a slight upturn in British prices may be significant straws. . . At home there is still no decisive evidence of business change. Our index is practically stationary at 78.2% of normal, about the average level of the last two months. Steel activity shows no sign of marked increase in demand, and spring automobile sales prospects are still uncertain. Strengthening of raw cotton prices, textile demand, and residential building projects has begun to stir some enthusiasm, but spring fever is probably a sufficient explanation of the rise in stock market prices and activity, perfectly paralleling last year's. Expansion of bank investments is somewhat encouraging, but as yet indecisive of any definite change in credit policy. —*The Business Week.*

Wool Goods Stocks Depleted

Wool goods stocks in first hands have been abnormally depleted during the last few weeks by the pressure on the part of buyers for spot goods. Plain goods have benefited since they were the ones that could most safely be stocked. Perhaps next season will see a reaction toward fancies. *(page 49)*

Wool Sells but Does Not Rise

Raw wool has been selling in a broader way lately but prices are said to be irregular. Choice merinos are steady but medium wools show a slight downward trend. *(page 55)*

A Lawrence Strike

A surprise strike was sprung in the American Woolen Co.'s mills at Lawrence, Mass., over the last week-end. Meeting their demands did not mollify the strikers, but without much fuel the strike is expected to die out. *(page 61)*

KNIT GOODS

Underwear Standards Adopted

Specifications and standards for the knitted underwear industry were formally adopted at a general conference under the auspices of the Bureau of Standards last week. *(page 31)*

Extracting Knit Goods

Savings in time and labor, as well as elimination of wrinkles and creases in the finished fabrics, are among the advantages claimed for a new and unique continuous extractor for tubular knit goods. *(page 41)*

Seek Knitted Polo Shirts

Outerwear sellers report revived interest in knitted polo shirts, the cotton numbers holding considerable interest. Women's rayon polos are hesitant. Bathing-suit demand holds steady but fall sweaters are dull. *(page 51)*

Call for Spring Underwear

Underwear demand centers on spring lines. In common with other textile markets buyers have been late in covering and are concentrating their operations into a much shorter period than usual. Even now total business is below normal. *(page 51)*

No General Hosiery Advance Yet

Hosiery producers are more optimistic than they were a month ago but at the same time they are less prone to expect any general price advance in the near future. *(page 51)*

SILK

Working on Summer Silks

Broadsilk houses are clearing out their spring goods and building up demand for summer specialties. There has been copious sampling of the new lines but few orders. *(page 49)*

Textile Program Will Benefit Industry Generally

Says Alfred Reeves

"MISTAKES of judgment are expected, but mistakes because of lack of facts in these modern days of business, are inexcusable," says Alfred Reeves, general manager, National Automobile Chamber of Commerce, New York.

"The textile industry can do nothing better than to further broaden its cooperative activities to obtain the facts which are the guide posts to business progress.

"Much of the progress in our motor industry can be credited to the broad-minded, cooperative work of competitors in business working for the general advancement of the industry as a whole.

"In pioneering its promising looking program, the textile industry will benefit American industry generally as well as its own."

Raw Silk Quiet

Raw silk is quiet and firm. Traders, though hopeful of the future, do not call the immediate outlook encouraging. Until uncertainties that are bound up in Japanese stocks pass, the market will remain on edge. Spun silk is steady, while thrown silk is dull. *(page 56)*

RAYON

Run-Resistant Underwear

Many knitters are finding it necessary to familiarize themselves with the difficulties encountered in the manufacture of Rubenstein fabric. There are several possible causes for distorted stitches in this run-resistant rayon. *(page 39)*

Demand Cutting Rayon Surplus

Keen demand for rayon has been maintained and hope is expressed in the market that the surplus stock with which the year started may be materially reduced before many more months go by. *(page 56)*

PROCESSING

Resisting Cotton Yarn

Cotton yarn for picot tops cannot be resisted by the methods employed for silk, but must be given a special immunizing treatment. *(page 38)*

Finishing Rayon Fabrics

Thorough scouring, careful selection of dyestuffs, and proper temperature in dyeing are necessary to prevent water marks, streaks, and blotches in rayon fabrics. *(page 38)*

Hosiery Dyeing

Chafing of silk hosiery often results from too long or too harsh a treatment in boiling off, but may be minimized by use of muslin bags in place of the regular meshed nets. *(page 39)*

Vacuum Extractor

Originally designed for handling plushes, velvets, and corduroys, an improved type of vacuum extractor has been found satisfactory for removal of moisture from sheer fabrics of silk, rayon, and cotton. *(page 41)*

Urges Curtailment

DECLARING that although conditions in print cloths have improved, the situation does not warrant increased production, President Ward Thoron of National Association of Cotton Manufacturers in a statement issued late Thursday urged the "few manufacturers who have not yet joined in the curtailment program" to cooperate. "If manufacturers of print cloths," he said, "desire either to maintain present margin or to improve same to a point of getting a rational operation profit, it is vital that operations not only should not be extended but if anything reduced by introducing one-shift schedule where more than one shift is now running."

Textile Industry Loses a Leader—in Death of

H. R. Fitzgerald

IN THE death, early on Tuesday, of Harrison Robertson Fitzgerald, president and treasurer of the Riverside & Dan River Cotton Mills, Danville, Va., the cotton textile industry of the country, and particularly of the South, lost one of its outstanding leaders. Death came after two heart attacks during the night. Although he had been under doctor's care for a week, he was at his office Monday. He was in his 58th year.

The strain of the four months' strike at Danville, which terminated Jan. 29, undoubtedly told heavily on Mr. Fitzgerald's health. His physician stated that worry on this score had speeded his death.

There is sad irony in the fact that industrial warfare contributed to the passing of a man whose name was synonomous with sound industrial relations for so many years. Mr. Fitzgerald devoted more of his time, energy and thought to the creation of a healthy employer-employee relationship in his plants than to any other phase of the manufacturing problem.

Over 12 years ago, he developed within his company a system of "industrial democracy," based largely on the John Leitch plan. For years, it functioned to the mutual satisfaction of management and workers. Even after business conditions prevented the payment of so-called "economy dividends," an important part of the plan, interest in the employee representation features continued. Underlying the "system" was a background of respect and confidence which was built up.

Last year, however, the picture changed. A 10% wage reduction was put into effect in February, 1930, with the explanation that the scale in the Danville plants was 20% above the average in southern cotton mills, and that competition necessitated this adjustment.

The plants immediately became the focal point of the attempt of the United Textile Workers of America to unionize the southern cotton industry. After preliminary organization work, a strike was called Sept. 29, 1930, and lasted exactly four months.

Before he died, Mr. Fitzgerald had the satisfaction of victory, in the sense that he had not yielded in the least on the major issue of the strike, namely, recognition of the union by the mill management. The outcome was generally accepted as a union defeat.

Mr. Fitzgerald was one of the pioneers in the movement against night work, which has crystallized recently in the plan for the elimination of night employment of women and minors in cotton mills. Early in 1928, he wrote TEXTILE WORLD: "I sincerely believe there is no more important or vital step in the direction of removing the evils from which the industry now suffers than the elimination of night work. . . . For many years we have eliminated entirely any night work in any of our plants—except in very exceptional instances where it is absolutely necessary to equalize some section or department by a few hours extra run. . . . I truly hope that the time is not far distant when all of our manufacturers will recognize these facts and discontinue night work."

The cotton industry of the South conferred upon Mr. Fitzgerald the highest honor within its power when it elected him to the presidency of the American Cotton Manufacturers Association in May, 1928. Keenly interested in all cooperative activities for the good of the industry, he was also one of the organizers of The Cotton-Textile Institute, and was one of its directors at the time of his death. Among his many other interests, he was vice-president of the U. S. Institute for Textile Research; and was active in the Methodist Church and in Rotary.

Mr. Fitzgerald was born in Danville, Feb. 27, 1873, and was the son of Thomas B. and Martha Hall Fitzgerald. He was directly connected with the Riverside Mills, founded by his father, for more than 40 years, beginning work as an office boy at the age of 17. He was elected president and treasurer of the mills about 12 years ago. In addition, he was a director of the Dan Valley Mills and the First National Bank, both of Danville, and vice-president of Piedmont Flour Mills, Lynchburg, Va. He was trustee of Emory University, Atlanta, Ga.; and the Ferrum School, at Ferrum, Va. He was active in religious work in his community, serving for many years as teacher of a large bible class at the Mount Vernon Methodist Episcopal Church. He was a member of the Rotary Club, the Tuscarora Club, and the Danville Golf and Country Club. In 1892 he married Miss Ida Lee Flippen who survives, together with the following children: Mrs. Fuller Hill, Durham, N. C., Mrs. Russell Gant, Raleigh, N. C., Misses Harriet and Ida Fitzgerald, of Danville. Funeral services were held Wednesday morning.

It was the good fortune of the editor of TEXTILE WORLD to know Mr. Fitzgerald personally over a period of many years. From his friendship with the late leader, he derived inspiration and hope for the future of an industry whose personnel included men of this type. Consequently he knows that the industry itself has lost one whose character and activities contributed much to its progress.

U. S. Institute Plans for Textile Research

Are Being Crystallized

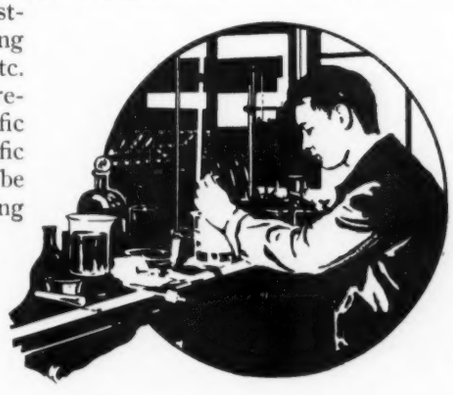
THE desire on the part of the textile industry to investigate the fundamental premises upon which its manufacturing technique is based, is gradually becoming articulate. This was the impression made upon an observer at the meeting of the U. S. Institute for Textile Research held Tuesday of this week at the Chemists Club, New York.

In a sense, this was the first meeting at which the scope of the problem confronting the Institute became to some degree defined, since previous meetings have been devoted largely to matters of organization. As expressed by Dr. Samuel W. Stratton, president of the Institute, in his opening remarks following the luncheon Tuesday, the officers and committees are "trying to get the job crystallized, and are gradually beginning to see light." This is a day of research, stated Dr. Stratton; it is necessary to get the industry research-minded, so that it may realize that research is a scientific way of working out its problem. But it is first necessary, he added, to see the problem clearly, and to have the co-operation of all factors.

Naturally, interest centers on the activities of the research committee of the Institute. As reported by Warren E. Emley, chairman, this committee has divided its work broadly into four fields: (1) Academic or scientific research, the foundation of it all; (2) Research work in the mills, including design and operation of machines, design of fabrics, and proper utilization of fibers; (3) Economic research, including such problems as finding markets for finished goods, etc.; (4) Research into the suitability of fabrics for use, testing methods, development of testing machines devising service tests, etc.

Various subcommittees of the research committee, to handle specific phases of the problem and specific branches of the industry, will be formed and thought is now being given to their personnel.

In addition, Dr. Emley announced the selection, by letter ballot, of four major problems out of a group of 23 suggested ones. These four problems, regarded as particularly important, are: (1) A scientific study of the wear of fabrics and the development of methods for resistance to wear; (2) Investigation of the relative suitabilities of present methods for testing yarns; (3) A study of the causes of shrinkage of cotton and wool; (4) Development of testing methods for fastness of dyes. In addition, two new problems were suggested at the meeting of the research committee Tuesday morning, namely, possibilities for the use of ammonia; and the use of fabrics for dust filters.



Survey for Textile Foundation

Another important matter having the attention of the Institute is the conduct of the textile research survey which the Institute has been authorized to make for the Textile Foundation and for which the latter has provided a grant of $5,000. A committee consisting of Dr. Emley, E. D. Walen and Prof. E. R. Schwarz, has been appointed by the president to cooperate with him and the secretary in this work. Dr. Emley announced that organization plans in this connection include the setting up of district contact men who will follow up answers to a survey questionnaire which has been prepared. To be of permanent value, he stated, this survey must be a permanent affair.

In addition, the Institute is planning to develop bibliography and abstracts of current literature on textiles. The voluntary services of three abstracters have been secured and Dr. W. F. Edwards will be editor-in-chief.

Business transacted at the meeting included reading of the report of the executive committee, by Charles H. Clark, secretary; adoption of amendment to the by-laws increasing the number of members of the executive committee from six to "not more than 12" in order to insure a more representative attendance at the regular meetings of this committee; election of new members; and the election of a board of trustees. The latter includes: A. E. Colby, treasurer, Pacific Mills; Alexander Morrison, secretary, American Association of Textile Chemists and Colorists; Albert R. Pierce, agent, Pierce Mfg. Corp. and Pierce Bros., Ltd., New Bedford; Dr. E. H. Killheffer, president, Newport Chemical Works, Passaic, N. J.; Allen R. Mitchell, Jr., of Allen R. Mitchell & Son, Philadelphia; P. J. Wood, vice-president, Oriental Silk Printing Co., Haledon, N. J.; and Dr. Stratton, ex-officio.

P. H. Hanes, Jr., president of P. H. Hanes Knitting Co., Winston-Salem, N. C., was elected director to succeed B. E. Geer for the term expiring October, 1932.

The meeting adopted a resolution of sympathy to be submitted to the business associates and family of H. R. Fitzgerald, of Danville, Va., a vice-president of the Institute, who died Tuesday morning.

Two papers were presented at the meeting. H. V. R. Scheel, vice-president, Botany Consolidated Mills, Inc., read an extremely interesting paper on "An Index Figure for Measuring Relative Effectiveness of Management from the Social Viewpoint." Prof. G. B. Haven, Massachusetts Institute of Technology, outlined comprehensively the limitations and possibilities of the textile research laboratory.

The membership of the Institute includes at present two life members, 28 contributing members and 73 annual members.

Effects of Twist

on Strength, Elongation, Contraction, Weight, and Uniformity of Cotton Yarn

By W. A. Wardell

Senior Student, Texas Technological College

THE problem discussed in this article was given as an assignment for research in the spinning and testing laboratories of the Textile Department, Texas Technological College, Lubbock, Texas; and the tests were made under the supervision of the instructing staff. The experiment was conducted on 20s cotton yarn with the object of determining the relation between twists per inch and strength, contraction, elongation or elasticity, and increase in weight and uniformity of the yarn.

The machines and processes through which the raw cotton was run previous to spinning were a vertical opener, two-process picking, carding, two processes of drawing, and three processes of roving. The cotton was of upland variety and about $1\frac{1}{16}$-in staple.

The yarn was spun on a 1925 model, tape-driven Saco-Lowell spinning frame of 96-spindle capacity. The break tests were made on a 1925 model Scott tester for skeins of 120 yd.

Forty-eight bobbins of roving of uniform size, approximately 3.5 hank, were put into the spining-frame creel, doubled, and given a draft of about twelve. From these bobbins of roving, 24 bobbins of yarn were spun. Twenty of these were taken for the break test. From each bobbin two skeins, each of 120 yd., were reeled and put to the break test, where the strength in pounds and the stretch in inches were automatically recorded.

Point of Maximum Strength

Seven different tests were first made with twist ranging, in intervals of five-tenths times the square root of the hank, from three times the square root of the hank to six times the square root, or from 13.5 to 26.8 turns per inch. From the seven tests it was observed that the yarns with 20 twists per inch and 22.3 twists per inch were the strongest. It was therefore assumed that the yarn with maximum strength would be found with a twist somewhere between these two points, and an eighth test was made in which yarn was spun with 21.2 twists per inch.

During spinning of tests No. 1 (13.5 twists per inch), six ends out of the 24 broke down, due to insufficient twist in the yarn. Only three broke during test No. 2, and for the remaining tests no ends broke. Kinky yarn was very noticeable during the high-twist spinning.

All tests were made under identical conditions. The spinning room is equipped with automatic humidity control. The temperature was kept at 70° F. The relative humidity in the testing laboratory was kept at 60%.

Contraction was obtained by running a high-count ply yarn between the front rolls of the spinning frame and winding it on the scavenger roll without adding more twist to the yarn. A starting point was marked on the test yarn corresponding to a similar point marked on the ply yarn. The stopping point was marked on each, and from the two lengths the percentage of contraction was calculated. Example:

310.5 yd. of ply yarn.
280.0 yd. of test yarn.

$$\frac{310.5 - 280.0}{310.5} = 9.8\% \text{ contraction.}$$

The average size, as reported in the accompanying record of data obtained, was found by weighing the

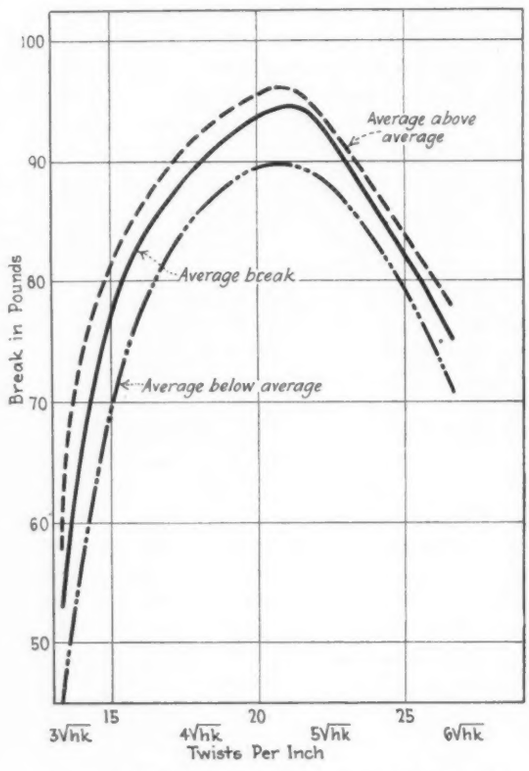


Fig. 1. Relation between strength and twist

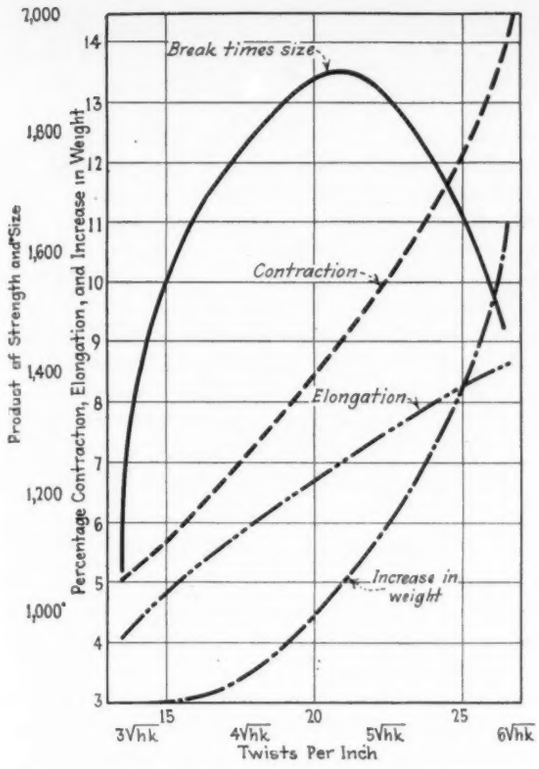


Fig. 2. Relation between twist and contraction, elongation, weight and strength

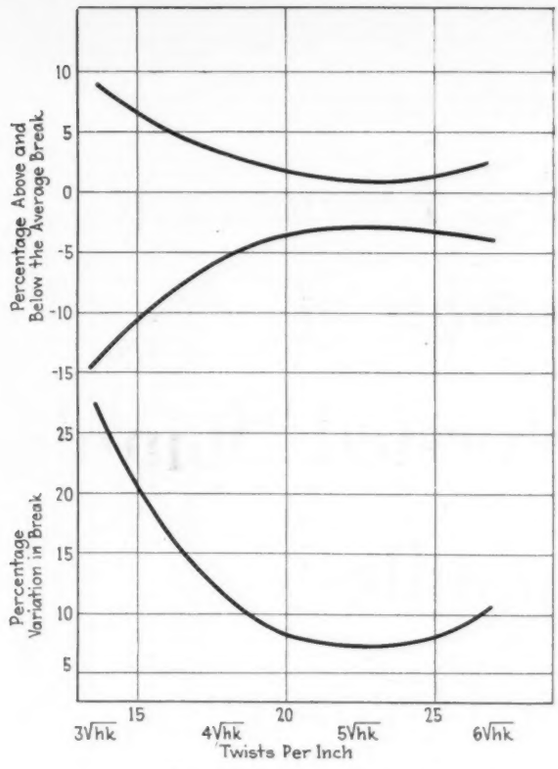


Fig. 3. Curves showing uniformity in strength

40 skeins of yarn, calculating the average weight, and, from this figure, determining the size or count. The method of correcting the breaks to 20s is explained by the following example:

49.1 is the average break. 21.7s is the average size.

$\frac{49.1 \times 21.7}{20} = 53.1$ the average break corrected to 20s.

The percentage of elongation was obtained by dividing the stretch in inches at the point where the skein broke by the length of the skein in inches. The percentage of increase in weight was based upon the weight of the skein from the first test.

Record of Data Obtained in Twist Tests

Test No.	Twist Multiplier	Twists per Inch	Per Cent Contraction	Average Break (Lb.)	Average Size	Weight (Grains)	Per Cent Elongation
1.	$3\sqrt{hk}$	13.2	5.0	49.1	21.7	46.0	4.2
2.	$3.5\sqrt{hk}$	15.6	6.0	74.3	22.0	45.5	5.1
3.	$4\sqrt{hk}$	17.8	7.8	84.6	21.1	47.4	5.9
4.	$4.5\sqrt{hk}$	20.0	8.8	90.6	20.8	48.0	6.7
5.	$5\sqrt{hk}$	22.4	8.3	90.2	20.5	48.7	6.7
6.	$5.5\sqrt{hk}$	24.6	10.4	82.5	20.8	47.9	7.4
7.	$6\sqrt{hk}$	26.8	14.5	75.4	19.6	51.0	9.3
8.	$4.75\sqrt{hk}$	21.2	7.9	90.8	21.0	47.6	6.9

Test No.	Break × Size	Average Break Corrected to 20's	Average Below Average	Per Cent Below	Average Above Average	Per Cent Above	Per Cent Increase in Weight
1.	1070	53.1	45.1	15.0	57.8	8.9	0.0
2.	1635	81.5	74.2	8.9	84.4	3.6	0.0
3.	1790	89.3	85.2	4.6	92.2	3.3	3.4
4.	1885	94.2	90.0	4.5	95.6	1.5	4.4
5.	1850	93.6	89.5	4.4	94.0	0.4	5.9
6.	1725	86.1	83.2	3.4	87.0	1.1	4.1
7.	1480	76.5	72.8	4.9	79.0	3.3	10.9
8.	1910	95.2	89.5	6.0	97.0	1.9	3.5

Fig. 1 shows the relation between the strength of the yarn and the twist. The inside curve represents the average break corrected to 20s plotted against the twists per inch. The top curve represents the average of all breaks above the general average, and the bottom curve similarly represents the average of all breaks below the general average. According to the reading of the curves, the increase up to the point of maximum strength is more gradual and less direct than the decrease.

Increase in Weight

The curves of Fig. 2 picture the relation between turns per inch and elongation, contraction, increase in weight, and product of size by break uncorrected. Observations show that both the elongation and contraction increase almost directly with the twist, and that the latter increases more rapidly. The rate of increase in weight is less during the low twist but becomes more rapid as the twist increases. Corresponding to the maximum strength on Fig. 2, the twist is about 21, the percentage of contraction is about 9.1, the percentage of elongation is about 7, and the percentage of increase in weight is 5.

Fig. 3 pictures the uniformity of strength. Points on the percentage-variation curve represent the sum of the distances between curves above and below the average break. The most uniform yarn is represented by the points nearest the base lines. The distance of the curve below from the base line is greater than the distance of the curve above, because of greater variation in the breaks below the average than in the breaks above the average. According to the reading of the curves, the most uniform yarn is of from 20 to 24 twists per inch. A further study of Figs. 1 and 3 will show that the yarn of greatest strength is the most uniform.

The twist corresponding to the maximum strength is about 4.75 times the square root of the hank, or 21 turns per inch.

Assigning Most Economical Number of Worsted Spinning Spindles *Per Operative*

By Morris C. Bishop

WHILE some excellent work has been done on the subject of spindles per operative for the spinning of cotton yarns, to the writer's knowledge little has been done on the same subject for worsted and mohair. This article will set forth an approach to that subject.

In the spinning of the better grades of worsted and mohair, one of the most important cost factors lies in the amount of lap waste that accumulates between the time the end breaks and is pieced up again. Some mills refuse to dilute their yarn with even a small amount of soft-twisted waste, so that this lap waste must be sold at a large loss to the spinner. Even where the waste is reprocessed, there is an appreciable loss, because considerable money is required for the reprocessing.

The value of cotton is only a fraction of that of worsted and mohair, and the processing in the cotton industry is done at a much lower cost. Therefore the conception of spinning cost is entirely different in the two industries.

It is a well-known fact that the waste may be reduced by additional spinners; but here we add labor cost to reduce waste cost, and the net gain is questionable. Each spinning overseer attempts in his own way to find the lowest cost point, but his procedure is only a matter of approximation by judgment, which is subject to considerable error.

Figuring Point of Minimum Cost

Through time study and mathematical analysis it has been found that, although the problem is complex, the point of minimum cost can be obtained with fair accuracy by calculation.

The subject can be analyzed in this manner because there is a very definite relation between the percentage of lap waste and the number of spindles attended. For illustration we shall take a condition in which an operative attends four frames of 120 spindles per side, making a total of 960 spindles. We shall assume the total number of breaks in an hour is 144 for the section attended by that operative, and that the operative follows a regular route making six complete circuits an hour, thus visiting each frame every ten minutes.

Some of the breaks will occur immediately after the operative leaves that side, and others will occur immediately before the operative arrives. The average down time of each break will therefore be half the time between visits of five minutes in this particular instance.

The breakage percentage is $(144 \times 100) \div 960 = 15\%$. Although 15% of the ends break, they are down only five minutes or 5/60 hour. Therefore, the lap waste is $(5 \div 60) \times 15$, or $1\frac{1}{4}\%$.

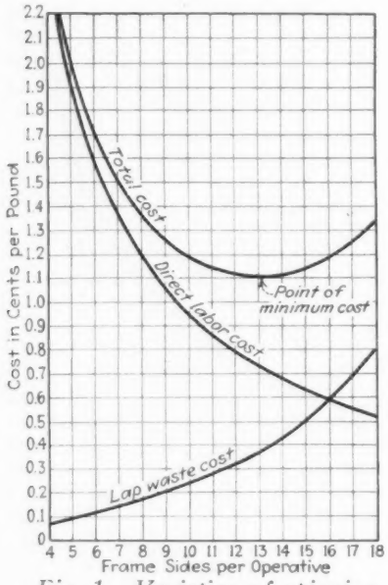


Fig. 1. Variation of spinning cost with variation of sides per operative

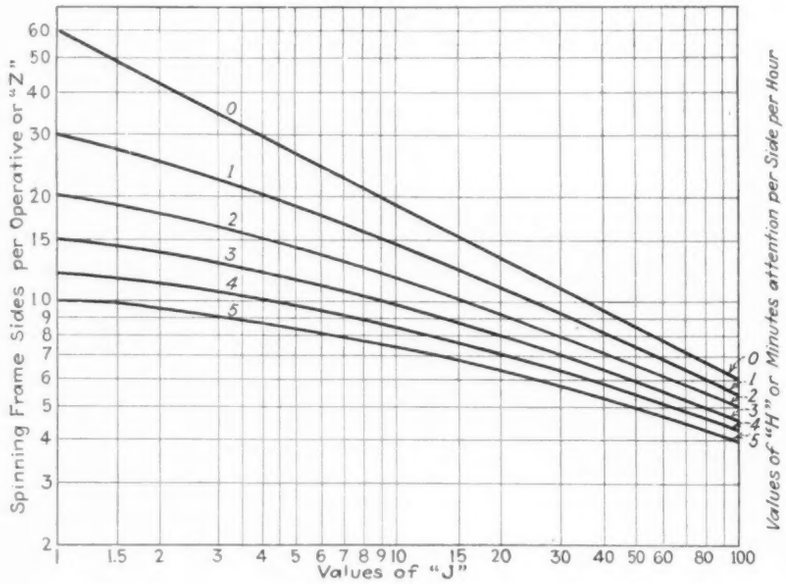


Fig. 2. Spinning sides per operative

This relation may be expressed in a formula which may be made general for any given condition as follows:

B = Number of breaks per side per hour.
V = Number of complete circuits made by the operative in an hour.
P = Spindles per side.

Therefore the percentage of breaks is $(100\ B) \div P$ per hour. The period between visits is $60/V$ minutes or $1/V$ hours. It has been shown that the average down time per break is half of the period between visits, or $1/2V$ hours. It has also been shown that the lap-waste percentage is the product of the breakage percentage and the down time of each break, or

$$\text{Lap-waste loss} = \frac{100B}{P} \times \frac{1}{2V} = \frac{50B}{PV} \text{ in per cent.}$$

To illustrate the application of this formula, we shall take the condition analyzed in detail, thus:

$B = 144/8 = 18$ per side per hour.
$P = 120$ spindles per side.
$V = 6$ per hour.

Substituting these values in the formula,

$$\text{Lap-waste loss} = \frac{50 \times 18}{120 \times 6} = 1\tfrac{1}{4}\%$$

Frequency of Visits

The frequency of visits is obviously affected by the number of sides attended and the work performed. The amount of attention that each side requires per hour may be found by time-studying the different operations, and determining their frequency of occurrence. The operatives' time is taken up in piecing up breaks, replacing run-out spools, cleaning, and walking from frame to frame, an expression for which may be set up as follows:

R = Number of roving-spool run-outs per side per hour.
Q = Standard time to replace run-out spool and start end.
S = Standard time for piecing up a broken end, in minutes.
B = Number of end breaks per hour.
W = Walking-time allowance per visit to each side, in minutes.
F = Standard time for cleaning, per side per hour, in minutes.
Z = Sides per operative.

Then the total time of attention required by each side each hour, or H, is expressed as follows:

$H = BS + RQ + F$ minutes.
Total time used in work other than walking $= ZH$.
Time available for walking $= 60 - ZH$.

$$\text{Visits per side per hour} = V = \frac{60 - ZH}{ZW}$$

Substituting this value of V in the expression for lap waste gives

$$\text{Lap-waste percentage} = \frac{50\,B}{PV} = \frac{50\ BWZ}{P\ (60 - HZ)}$$

Cost Formula

This expression definitely establishes the relation between the percentage of lap waste and the number of sides attended, so that it is possible to set up a cost formula for spinning in terms of the sides attended.

The only two cost elements that will be considered are direct labor of the spinning operative and the cost of lap waste. The other factors of cleaning, doffing, supervision, and burden are constant, or nearly so, no matter how many sides the individual operative attends, and hence will not be considered.

In setting up the cost expression, let

G = Hourly wages of operative, in dollars.
L = Depreciation of value of waste, or
= Value of spun yarn minus value of waste, in dollars per pound.
E = Operating efficiency of machine divided by 100.
D = Delivery rate of front roll, in pounds per spindle hour.

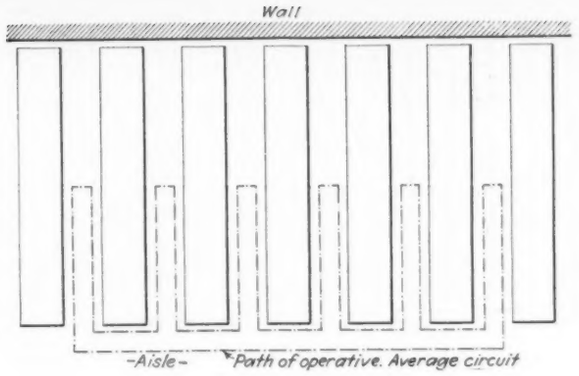


Fig. 3. With no aisle at wall

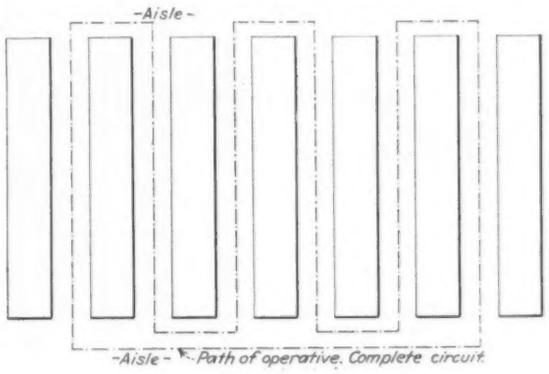


Fig. 4. With both aisles free

Then, it can be stated that

$$\text{Direct-labor cost} = \frac{G}{PZDE} \text{ in dollars per pound.}$$

$$\text{Lap-waste cost} = \frac{50\,BWZ}{P\ (60 - HZ)} \times \frac{L}{100} = \frac{BLWZ}{2\,P\ (60 - HZ)}$$

$$\text{Variable cost} = \text{Direct labor} + \text{Lap-waste costs.}$$

$$= \frac{G}{PZDE} + \frac{BLWZ}{2\,P\ (60 - HZ)}$$

in dollars per pound of spun yarn.

To illustrate how the two cost factors and their sum vary in relation to each other with the sides attended, the curves shown in Fig. 1 have been drawn up with the following values:

G = \$.40 per hour per operative.
P = 100 spindles per side.
E = 90/100 = .90, operating loss of 10% for the week.
D = (for 1/24s on 4-in. roll at 30 r.p.m.)

$$= \frac{4 \times 3.14 \times 30 \times 60}{36 \times 24 \times 560} = .04685 \text{ lb. per spindle hour.}$$

(Or refer to either Fig. 3 or 3a, TEXTILE WORLD, June 14, p. 51.)
B = 10 breaks per side per hour.
L = \$.60 loss per pound of lap waste.
W = .30 minutes walking time per visit per side.
F = 0, since cleaning is to be done by cleaners.
S = .16 minutes for piecing up break.
Q = .30 minutes for replacing run-out spool.
R = 2.10 run-outs per side hour.
Roving spool weighs 2 lb.

$$\frac{2}{.04685 \times .90} = 47\tfrac{1}{2} \text{ running hours per spool.}$$

$$100/47\tfrac{1}{2} = 2.10$$

$H = BS + RQ + F = 10 \times .16 + 2.1 \times .30 + 0$
$= 2.23$ minutes, total time of attention per side hour.
Z = Variable.

Substituting these values in the formula for cost, as follows:

$$\text{Total cost} = \frac{.095}{Z} + \frac{.009\,Z}{60 - 2.23\,Z} \text{ in dollars per pound.}$$

The data obtained by means of this formula were tabulated and the curves shown in Fig. 1 were calculated

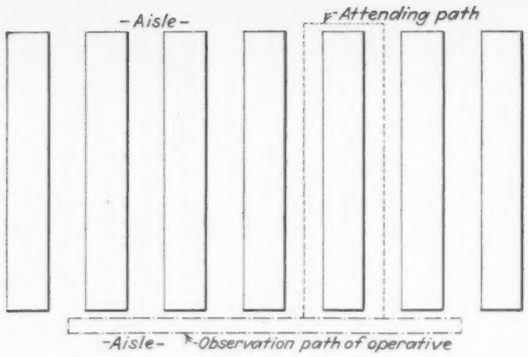


Fig. 5. When lighting is good

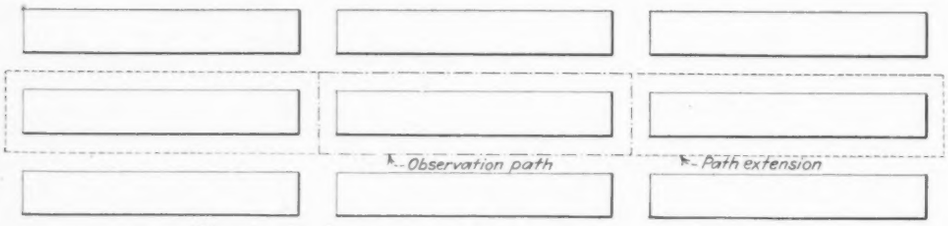


Fig. 6. End-to-end arrangement with good lighting

thereby. It will be noticed that separate curves are shown for both of the cost factors and the total. The labor cost decreases with increase of sides per operative, while the waste increases. The total cost curve shows that the point of minimum cost is when approximately 13 sides are attended with the cost varying only slightly from 12 to 14 sides. At the lowest point on the total cost curve it is very noticeable that the waste is approximately one-half of the labor cost. At 16 sides the two cost factors are equal.

Most Economical Number of Sides

To draw up curves such as are shown in Fig. 1 for each spinning condition that might arise would be impractical; hence more simple means are desirable for finding the most economical number of sides to assign to each spinner. This may be done by differentiating the cost expression with respect to sides Z, and equating the expression to zero to find the minimum point on the total cost curve.

The mathematical operations in securing the final formula are somewhat complicated and will not be illustrated here. The resulting formula is

$$Z = 60\,\frac{(H \pm \sqrt{J})}{(H^2 - J)}$$ for most economical conditions.

Where

$$H = BS + RQ + F \qquad J = \frac{30\,BLEWD}{G}$$

It will be noticed that H is the total time of attention required by each side per hour, while J contains a ratio between labor and waste cost that is more difficult to name.

The simplest means so far devised for showing the relation of Z, H, and J is illustrated in Fig. 2, the calculations for which are not shown here.

To illustrate the use of this chart, let us take the particular condition represented in Fig. 1 and see if the two check. H has already been calculated as 2.23 minutes; only J remains to be found.

$$J = \frac{30\,BLEWD}{G}$$

$$= \frac{30 \times 10 \times .60 \times .90 \times .30 \times .04685}{.40} = 5.70$$

Reading the curves in Fig. 2 gives the value of 13 sides, which checks the curves in Fig. 1.

From examining the formula for finding the most economical number of sides to assign to a spinner, it cannot be said that it presents important information upon what to increase or decrease in order to save money in spinning, other than balancing the ten variables to their most economic condition. The curves on Fig. 2 indicate that H and J should be reduced to their lowest point to secure low spinning costs. The most superficial examination of this problem would reveal a relation between breakage and lap-waste loss; between waste and the number of sides attended. Every spinning overseer knows how to reduce either labor or waste. How far and what to reduce has been the problem, which the formula helps to solve.

It has been shown that lap waste and the frequency of visits are inverse functions. It is desirable, therefore, to increase these visits as much as is practicable. One way to do this is to limit the operations of the spinning attendant to piecing up broken ends and replacing run-out roving spools, leaving the cleaning for cleaners. As may be noted, this reduces the variable H, which can be reduced still further by removing the duties of replacing run-out spools; but spool replacements take little time ordinarily and can best be done by the operative who is in charge.

With the operative being responsible for these two operations only, it will be found advisable to assign only even numbers of sides. This is the case because, if the operative must enter an aisle, both sides should be attended. In itself, a side ordinarily takes little attention as measured in minutes, but it should have a great deal of watching.

Length of Circuit

In considering means for increasing the capacity of the individual operative for attending spindles, the length of the circuit should be studied, so as to get the maximum attention with the minimum walking. To illustrate this, Figs. 3, 4, 5, and 6 were drawn to show four typical floor-plan arrangements with the walking circuit described with a dot-dash line. The scale corresponds to frames 30 ft. long and 5 ft. wide. Aisles between frames are 4 ft. wide. The routes are laid out to correspond to that taken if 12 sides were attended.

Fig. 3 illustrates the condition where the frame is set so close to the wall on one end that there is no aisle there. The route that is represented is the minimum for poor lighting where the aisle has to be entered to observe all the ends in that aisle. If good lighting were provided, such as is the case with mercury-vapor lights, it would not be necessary to enter the aisle unless a spindle required attention.

Fig. 4 improves on Fig. 3 in that both aisles are free and that no retracing of steps is necessary at either end of the aisle. The circuit takes the operative to each spindle so that the path is regular for each circuit. Each spindle is observed from a short range, so that lighting may be poor and not affect the attending efficiency to any great extent.

Fig. 5 shows the same arrangement as Fig. 4, but the path illustrates the advantages (*Continued on page 32*)

Opponents to Elimination Of Night Work for Women and Minors Should Hoist True Colors

By Walker D. Hines

Chairman, The Cotton-Textile Institute

NIGHT work of women and minors in the cotton mills is widely discussed. There is a good deal of confused comment which calls for clarification.

In my four years and more in this industry, I do not recall ever having heard a mill man argue that night work for women and minors was a good thing in itself. Many mill men have been outright critics and opponents of the practice. Others have been defensive and apologetic, conceding that the practice was not desirable and should be stopped at some convenient time, but at some future time.

At present a movement recommended by The Cotton-Textile Institute for the voluntary stoppage of such night work is close to success. It will succeed if conformity to it can be shown by at least 75% of the industry and of the night runners and corresponding percentage in the well-defined groups. A percentage of 79% for the industry as a whole and of 72% of those classified as night runners can now be shown.* In a few groups there is a somewhat greater shortage of percentage of night runners, but the matter is continuing to receive active attention.

Meanwhile, entirely separate movements have been started in some States to legislate against night work of women and minors (all legislative matters, however, being outside the Institute's functions). In the legislative hearings there have been various statements which confuse the voluntary movement and the movement for legislation and which obscure the motives of those who oppose the stoppage of such night running.

In any discussions of the desirability of such night work it is important for those opposing its discontinuance to disclose clearly their own position and motives. The best way to make this clear is for such opponents to show whether they regard such night work as a thing to be desired and perpetuated or whether they are anxious to see it stopped.

If a man declares that he believes night work is meritorious and should be indefinitely continued, then he is in a consistent position to oppose both the present and future stoppage of such night work and to oppose any and every form of stoppage that is suggested. But it is not clear that any of the opponents are willing to put themselves in this clear-cut and consistent position.

Some who oppose legislation are likely to stress objections to legislation and likely to do so on such grounds that legislation is hard to modify, that it is a bad example and leads to additional legislation, that it will put one state at a disadvantage with another, etc. These are understandable positions. But if these are the true reasons and if these gentlemen are opposed to the principle of working women and minors at night, why do they not join the movement for the voluntary elimination of such night work? Yet they do not do so. It looks as if they wanted to perpetuate such night work for its own sake.

Walker D. Hines

Others go to the extent of indicating there should be no interference of any character by legislation or otherwise with the uncontrolled discretion of each mill manager to run his business as he sees fit and that the only way to put the industry on a prosperous basis is by engaging in a war to the death among the mills, leaving them free to employ every possible weapon, including the weapon of working women and minors at night. These gentlemen say this is "survival of the fittest" (a doctrine which, by the way, is unsound and does not produce the desired result). Apparently they argue that the fittest mill is the one which most extensively works women and minors at night. These opponents seem to want such night work for its own sake, but do not want to admit it.

Others oppose all efforts to eliminate night work for women and minors on the ground that some who favor it do so for humanitarian reasons while really they are doing so for an economic reason, that is, to avoid overproduction. This is a strange position to take. There are two perfectly good grounds for this reform. One is the humanitarian reason of keeping women and minors out of cotton mill work at night. The other is the avoidance of overproduction (this also has a humanitarian side because it will help stabilize employment). It seems unlikely that anyone who earnestly believes in this reform would turn against it because some of its supporters stress one reason rather than another.

Some have urged that this entire movement to stop night work for women and minors is a selfish scheme of mills that run only daytime. This argument necessarily implies that the night runners believe in such night work for its own sake and want to see its indefinite continuance. But this creates a wrong impression as to most night runners because they do not believe in it. The movement for this reform was started very largely by important mills running regularly at night and it has the support of a large majority of the night running mills. Indeed, there are only 34 cotton mills in the United States with 50,000 spindles or more which have not yet indicated conformity to this reform.

Some argue that the real reason for their opposition to this reform is that it will (*Continued on page 62*)

*At press-time, these percentages had been increased and expectation was strong that enough spindles would be obtained to bring the night runners figure over 75% and that an announcement to this effect might be made Saturday.

Simple Precautions Eliminate Difficulties in Dyeing Carbonized Wool

By Chas. E. Mullin
D. Sc., M. Sc., F.A.I.C., F.T.I.

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DYEING of aluminum-chloride carbonized wool and noils has been the subject of considerable discussion among wool dyers for many years. This type of stock has been blamed—rightly or wrongly—for many of the difficulties encountered in dyeing wool in all forms. Yet, aside from an occasional inquiry and answer in the textile publications, nothing appears to have been printed on the subject.

As is usually the case, this type of stock has been unjustly blamed for many dyehouse defects. Either through ignorance or a desire to "pass the buck," dyers have used this probable cause as the excuse for many badly dyed lots. In many instances where this excuse was used, no such processed stock was present in the lot, but it served as an explanation for poor work.

Causes of Difficulties

No doubt the bad reputation of aluminum-processed stock in the minds of many dyers remains from the work of many years ago; from the defective work of carbonizing plants which did, or do not, fully understand the process and just how to handle or control it; or from carelessness in handling the process. The aluminum chloride carbonizing process is quite different from the older sulfuric acid process, is more difficult to handle and control, and requires a better understanding of what may occur in the plant due to carelessness on the part of the workmen.

Another cause of trouble in dyeing this type of stock is the fact that although aluminum-processed stock is supposed to be neutral; in actual fact it always reacts acid, unless it is given a special neutralizing treatment. Furthermore, this aluminum processed stock always contains some aluminum oxide or hydroxide (alumina) that will combine with some dyestuffs to form lakes in the dyebath.

In spite of all these facts, however, it is interesting to note that many plants have been handling aluminum-processed stock for 25 years or more without any difficulty or complaint. In some cases the dyers in these plants make no effort to determine whether the stock has been carbonized by the aluminum chloride or sulfuric acid process, but handle both in the same manner without encountering any trouble.

There are many things that can occur in the aluminum chloride carbonizing process which may cause trouble in the subsequent dyeing of this stock. The fact that most of the carbonizing plants doing this work handle it as a continuous process does not in any way obviate the defects that may occur through even the slightest carelessness on the part of the workmen. One part of the stock may be entirely satisfactory, while another part of the same lot may be ruined as far as level dyeing is concerned.

Still another cause of difficulty in dyeing is due to the mixing of aluminum chloride carbonized wool or noils with stock that has not been carbonized, or that has been handled by the sulfuric acid process. This particular type of trouble is bad enough when it is encountered in dyeing raw stock, but it is much worse when dyeing either tops, yarn, or piece goods.

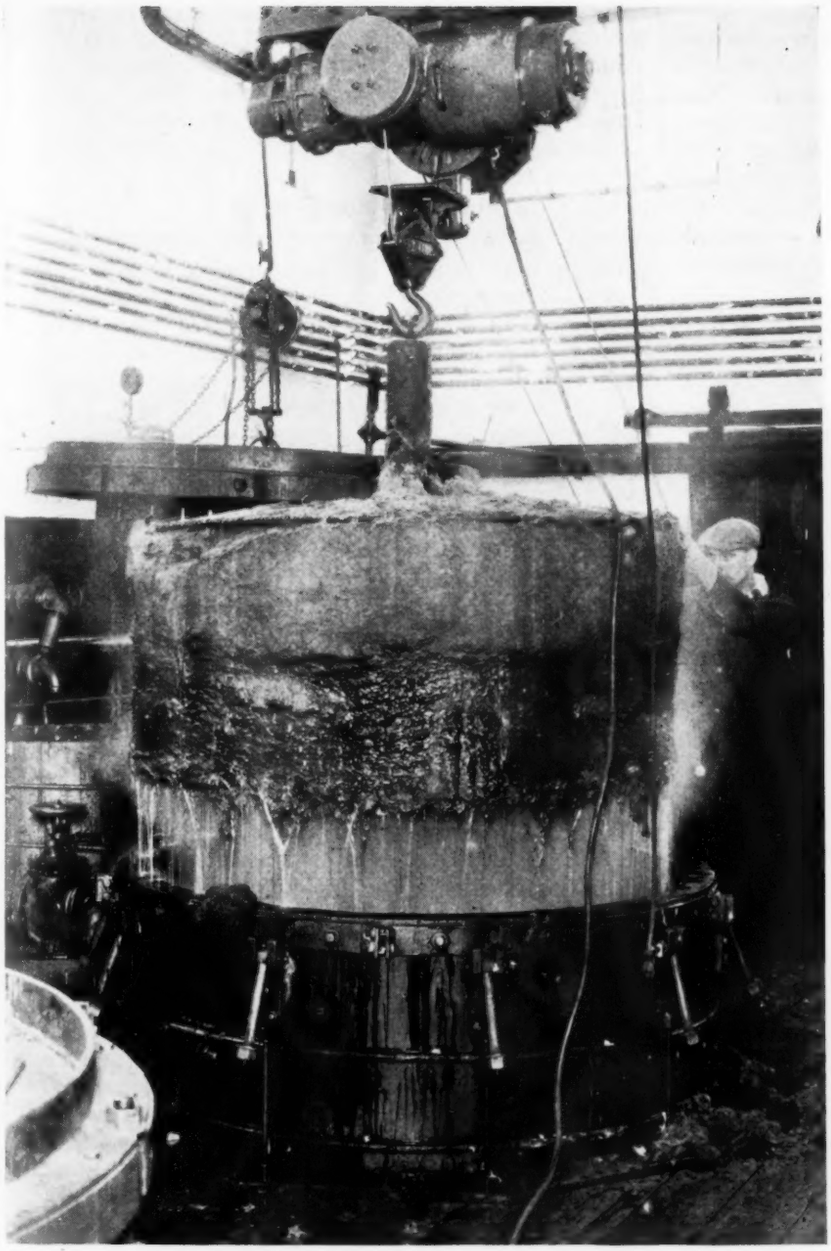
The Remedy

Many manufacturers buy all their wool stock in either the scoured or carbonized condition from wool dealers. In many of these plants the dyer has no way of learning just exactly how each bag of the various lots was handled, or how the stock was mixed, before it came into his hands. In this case the best thing the dyer can do is to give every lot of wool received a good rinse in a warm dilute ammonia bath, followed by another rinse in warm soft water. This treatment should not only neutralize all of the acid present in the stock from either the aluminum chloride or sulfuric acid carbonizing process, but it should remove a part of the free alumina in the stock.

Where the stock has not been neutralized and no acid

◆

Difficulties encountered in dyeing carbonized wool may be largely avoided by giving the wool a simple preliminary treatment in the dye kettle. In the accompanying article, Dr. Mullin recommends the procedure which has been found to give best results, and outlines a simple method of testing wool to determine whether it has been carbonized with aluminum chloride. The author, who is now professor of chemistry, rayon, and dyeing, and head of division of textile chemistry, Clemson College Textile School, was for many years closely connected with the wool dyeing industry.



Difficulties met in wool dyeing often can be avoided by giving the stock preliminary treatment with ammonia

is present, this double rinse serves to remove any soap remaining from the scouring operation. The amount of soap remaining in scoured wool may be considerable, especially where the stock has been scoured in a four-bowl scouring machine; and unless this soap is removed, it may be decomposed in the acid dye or mordanting bath, leaving spots of free fatty acid or insoluble metallic soaps on the goods. These defects are often similar in appearance to those occurring in improperly handled aluminum chloride carbonized goods. In the case of mixed stocks, rinsing insures that the stocks are at least more nearly uniform as to treatment than before.

It is not at all necessary to put the stock through any special machine or process to give it this rinse, and practically all of the dyers using this method give the rinse right in the dye kettle before starting the actual dyeing. The usual procedure is to place the stock in the kettle and give it a good rinse with soft warm water while working the stock. This will dissolve and remove some of the aluminum chloride, sulfuric acid, or soap that may be present. The water is then run off, and the dilute ammonia bath run into the kettle. In the case of carbonized stocks, this bath should be sufficiently strong and remain in contact with the stock long enough, say ten minutes, while working, to neutralize all of the acid present. The final short warm water rinse is then given, and the dyeing proceeds.

It is obvious that the exact details of these operations will vary somewhat with the plant, type of dyeing apparatus in use, dyestuffs to be applied, etc. Some dyers have found it satisfactory to place the stock in the dye kettle and turn on the warm water, allowing it to overflow the kettle. After a short time the water is turned off, sufficient ammonia is added to the water remaining in the kettle to neutralize the acid present, and the dyeing proceeds at once in this bath.

Testing the Stock

Another method of avoiding trouble due to the presence of aluminum chloride carbonized stock is to test each bag or lot of stock before use for the presence of aluminum chloride. It is even better to test for acidity, alkalinity, and sulfates as well; but all these tests require more time than the average dyer wishes to give to this work unless he has a chemist available.

Unless they have been given a special neutralizing treatment, aluminum-processed stocks are acid to methyl orange. Although litmus paper is the most commonly used indicator for testing wool for the presence of acid, it is much better to wet out the wool with a little water and then test this for acidity by adding a few drops of methyl orange indicator. Of course, unneutralized sulfuric acid carbonized stocks are also acid by this test, and usually contain much more acid than the aluminum-processed stocks.

If the stock reacts acid to methyl orange, it has undoubtedly been carbonized, and this may be identified by further tests. Aluminum chloride processed stocks always give a strong test for chlorides, by means of silver nitrate; and sulfuric acid carbonized stocks always give a strong sulfate test, even after neutralizing. However, not all stocks showing the presence of a small amount of either sulfates or chlorides, or both, have been carbonized. These traces may come from the soap and soda used in scouring, chemicals used in wool pulling, or from other sources. Also, since aluminum chloride often contains sulfates as an impurity, and the drying and actual carbonizing operations, as well as the trucking and other handling, are usually done in the same equipment used for handling the sulfuric acid carbonized stock at other times, the aluminum-processed stock generally shows the presence of a strong trace of sulfate. At the same time, the acid-carbonized stock may show a trace of chlorides, probably derived from about the same sources. Therefore a little experience is of considerable value in making the tests.

There are many ways of making these tests, but after

making thousands of them, the writer prefers the following procedure: Take a couple of grams of the well-mixed wool sample and place it in a small beaker. Push it down into the bottom of the beaker and just cover it with distilled water. Heat nearly to boiling while working the sample well with a glass rod. Allow the beaker and contents to cool a little and, if cloudy, filter off sufficient of the liquid for the tests. The acidity test with methyl orange is best made on a cool sample of this liquor.

Pour about 15 c.c. of the clear solution into a $\frac{5}{8}$-in. test tube and add about 1 c.c. of chemically pure concentrated hydrochloric acid. Mix and then add about 2 or 3 c.c. of barium chloride solution. Allow the tube to stand for a short time, when the presence of a very fine, rather heavy precipitate which is insoluble in acids, indicates the presence of sulfates. The barium chloride solution is prepared by dissolving 122 grams of chemically pure crystallized barium chloride ($BaCl_2 . 2H_2O$) in sufficient water to make a liter.

To test for chlorides, take another 15-c.c. sample of the liquor from the wool, as in the sulfate test, and add about a drop of concentrated chemically pure nitric acid and 0.5 c.c. of silver nitrate solution. If a white, curdy precipitate is formed, continue the addition of silver nitrate solution until no further precipitate is formed. In order to be sure that this precipitate is silver chloride, remove a small portion of it to another test tube and treat it with a little concentrated chemically pure ammonium hydroxide solution. This should dissolve the silver chloride, but upon the addition of a little chemically pure nitric acid, to neutralize the ammonia, the silver chloride will be reprecipitated. The precipitate is insoluble in nitric acid. The presence of pulled wools will often give a brownish or dark color on the addition of silver nitrate, due to the presence of sulfides in the stock, and very often the solution in the test tube is slightly yellowish in the absence of much chloride, due to the presence of sulfur compounds from the wool itself. The silver nitrate test solution mentioned above contains 17 grams of chemically pure silver nitrate ($AgNO_3$) per liter.

In the absence of heavy traces of chlorides it is useless to test for aluminum; but if considerable chloride is present, it is best to verify that this comes from aluminum chloride. To test for aluminum, take a fresh sample of wool and proceed to extract it with water as before, except that before heating, add 2 or 3 c.c. of concentrated hydrochloric acid to the water covering the wool sample. Boil for about 5 minutes, cool, filter if necessary, and remove about 15 c.c. of the liquor, as in the previous test. Add concentrated ammonium hydroxide solution until, after mixing well, the sample smells strongly of ammonia. Allow the tube to stand a short time. A gelatinous precipitate indicates the presence of aluminum. The precipitate is much more easily visible upon standing for a short time. Repeat the precipitation, using sodium or potassium hydroxide solution, when the precipitate at first formed is soluble in an excess of the reagent. The sodium or potassium hydroxide reagents are prepared by dissolving 19.7 or 36.9 grams, respectively, of the chemically pure (by alcohol) sodium or potassium hydroxide in sufficient carbon-dioxide-free distilled water to make a liter, and protecting the solution from the carbon dioxide of the air.

When pulled wools are present, even a small amount of carbonate in the ammonia solution will often give a precipitate of calcium carbonate which may be mistaken for the aluminum hydroxide unless the confirmatory tests are made. In the presence of lime or pulled wools, the Aluminum Red test is often the most satisfactory. Slight traces of aluminum salts may be present in many wools from sources other than aluminum chloride carbonizing, so that some quantitative judgment is necessary in making these tests.

Avoiding Trouble

With the increasing use of acid dyestuffs there is probably less trouble with the dyeing of aluminum-processed stock than occurred many years ago, when more of the mordant dyestuffs were used. At the same time, one of the best, safest, and simplest methods of avoiding all kinds of troubles in the dyeing of wool, is to test all of the stocks thoroughly, as just outlined, before dyeing them or blending or mixing lots to be dyed or manufactured. It may be that each different lot will take just a little different shade under identical dyeing conditions with the particular dyestuffs in use. If so, each lot can be dyed to shade separately, and then the lots mixed. But if these lots are mixed, and especially if the stock gets into yarn, and this yarn is mixed in the piece with other yarns of a different blend, there is sure to be more or less difficulty in getting the goods level and to match the sample, even if they are well rinsed before dyeing.

There is no one class of dyestuffs, some individual members of which may not form lakes with alumina or aluminum chloride under certain conditions, so as to give shades, or even colors, different from those obtained in the absence of these compounds. This lake formation is not alone confined to aluminum compounds, but may also occur in the presence of calcium salts, such as lime, which is usually present in pulled wools, or may come from the use of hard water in dyeing.

Most of the mordant and acid-mordant dyestuffs, many of the ordinary acid dyes, and even some of the basic dyestuffs will form lakes with alumina under certain conditions, and besides the total loss of this dyestuff, the lake may become loosely fixed on the dyed stock and cause crocking. Of course the mordant dyes are particularly liable to give trouble in this manner. For this reason, where dyestuffs are to be used in dyeing stock which may contain alumina or aluminum salts, each dyestuff should be tested separately with such aluminum compounds, under conditions similar to those in the dyebath, to see if such alumina-dyestuff lakes are formed. If they are formed, either the method of dyeing should be altered, if possible, to such an extent that they are not formed; or some other dyestuff should be substituted. In case both of these changes are impossible, some other stock, entirely free from alumina, should be used.

It is well known that many dyestuffs give different colors on different mordants. For example, logwood gives a good black on chrome, but gives violet on alumina. Where light shades of logwood are to be dyed on a chrome mordant, it is sometimes impossible to get the desired shade on aluminum-processed stock. In the same way, the presence of considerable alumina in the stock may more or less alter the shade of even darker shades of logwood, so as to render it very difficult to match a pure chrome mordant. Of course it is often possible to shade up these off colors by adding small amounts of acid dyes.

It is evident that if the dyer accepts the often-repeated statement that aluminum chloride carbonized stock is neutral, he is courting trouble. The ammonia-rinse, however, serves to prevent uneven dyeing and other difficulties.

Underwear Standards Adopted

at Washington Conference

Roy A. Cheney, Secretary, Associated Knit Underwear Manufacturers of America, presented the new standards

SPECIFICATIONS and standards for the knitted underwear industry were formally adopted at a general conference of the industry held Feb. 19 under the auspices of the Bureau of Standards, at the Bureau of Standards Building, Washington, D. C. The standards were substantially those adopted by the Associated Knit Underwear Manufacturers in May, 1925, with additions and revisions to May 22, 1930. The chief difference was that the sections relating to rayon underwear were dropped. B. Bregstein, of Bregstein Simon & Co., New York, objected to the rayon standards as incomplete and inconsistent with size ranges established at a meeting with the Better Fabrics Bureau of the National Retail Dry Goods Association last month. Following considerable discussion on the subject, it was decided to keep rayon lines out of the code, the sentiment being that this division should be taken up separately.

At a meeting held Feb. 18, preliminary to the conference, it was decided that a meeting of producers of rayon yarn fabrics and underwear, as well as distributors and dealers be held in New York, April 16, to set up standard measurements for these lines. Plans for this conference are in charge of a committee which is working in cooperation with the Viscose Co. and the Better Fabrics Testing Bureau. The Viscose Co. is interested in the proposal as it bears a direct relation to that firm's "quality control plan"; a chief reason for the adoption of the "quality control plan" was to improve the standard of underwear made from Viscose Co. rayon, and which carries the firm's brand name, "Crown Brand."

The general conference was opened by I. J. Fairchild, of the Division of Trade Standards, Bureau of Standards. Mr. Fairchild represented Dr. George K. Burgess, director of the bureau, who, he said, regretted inability to attend the meeting. Mr. Fairchild reviewed the work done, leading to the drafting of the standards; he emphasized the points that the specifications were not 100% perfect, but added that they represented the best thought of the industry, and had been approved by the principal distributor organizations.

Bureau as Coordinator

"The Bureau acts merely as a coordinating force in drafting these standards for the underwear industry," Mr. Fairchild said. "We have no police powers, and we do not want any. But we expect the manufacturers to adopt and use these standards."

Commenting upon the small attendance at the conference—only about a score was present—Mr. Fairchild said the department sent out 1,100 invitations to attend. He added, "this small attendance is a good sign, as it would indicate that all the manufacturers favor the standards as now before us for adoption; indeed, we understand most mills have already adopted them in some form or other."

Roy A. Cheney, secretary of the Associated Knit Underwear Manufacturers of America, presented the new standards, with a brief address of explanation. He said:

"The standards now before you have been accepted by the industry and by our association which represents 85% of the trade volume, and also by the distributors. They are the result of years of technical and commercial research, and they are not arbitrary. They aim to eliminate misunderstanding between manufacturers and distributors, the chief purpose being to deliver to the consumers the proper fitting garments."

Mr. Bregstein, whose firm manufactures women's rayon underwear, then interposed his objection to the inclusion of specifications for rayon garments. Mr. Cheney expressed sympathy with his view, pointing out that the rayon underwear industry represented an important sub-division which had not been fully represented in the specifications, and it was decided to eliminate from the standards, all sections pertaining to rayon underwear.

Standards Adopted

Mr. Fairchild then called for a vote on the standards, and the specifications were adopted, subject to a few technical changes. The standards cover: methods of measuring; men's union suits of all types except rayon; men's shirts; boys' union suits and shirts and drawers; children's and misses' union suits; children's vests, pants and sleeping garments; infants' shirts; women's union suits, vests, drawers and bloomers. A supplementary division includes recommended underwear box sizes; cone colors for single cotton yarns; suggestions for washing rayon knit underwear (the sole rayon item admitted); and suggestions for washing wool and cotton underwear.

Lt. Col. O. H. Sampson, of the Quartermasters' Corps,

U. S. Army, objected that certain of the measurements did not coincide with army specifications, in particular the men's shirt length. William E. Springer, of the U. S. Marine Corps supported him on this point, and considerable discussion followed. Mr. Cheney said he felt it would be inadvisable to change the standards as they had been based on 50 years trade experience among civilians. Others representing the industry leaned to Mr. Cheney's view, but it was pointed out that the manufacturers would be prompt to make arrangements to meet Government needs in any emergency.

The conference then took up the setting of dates for start of production under the standards, and for clearance of existing stocks. A proposal made was that production under the standards start July 1, this year, but that was objected to as too early. Ralph M. Jones, vice-president of Utica Knitting Co., proposed Jan. 1, 1932, be set; this, he pointed out, would let the spring season clear in July, and the fall season clear in December; this date was formally approved. No date was set for the clearance of existing stocks.

Mr. Fairchild told of the adoption of a certificate plan, by which underwear manufacturers will sign certificates pledging that each specific shipment complies with the standard requirements as regards measurement. It was pointed out that this would eliminate the need of inspecting such shipments and make conformity with standards part of the contract of purchase.

A standing committee to supervise operation of the standards was appointed as follows: E. A. Clements, president Globe Knitting Works, Grand Rapids, Mich.; Roy A. Cheney, secretary of the Associated Knit Underwear Manufacturers; Ralph M. Jones, of Utica Knitting Co., a representative of the Quartermasters Corps, U. S. Army, and one member from each of the following organizations: Wholesale Dry Goods Institute, National Retail Dry Goods Association, National Association of Clothiers and Furnishers, American Home Economics Association and General Federation of Women's Clubs. The two latter groups represent the distributors and the consumers respectively. W. B. Fry, supply division, Indian Affairs, was named chairman of this committee.

The formal approval of the standards is welcomed in the underwear industry as marking an important step forward. The size problem has been a vexing issue for many years, to manufacturer, distributor, and consumer, and it is felt that the specifications will do much to increase customer satisfaction with garments. The proposed rayon underwear standards meeting to be held in New York will, it is hoped, result in the adoption of standards for that division, thus enabling the industry to present a united front with respect to standard measurements.

An interesting sidelight of the conference was the news that Mr. Clements, of Globe Knitting Works, who is chairman of the standardization committee of the manufacturers' association, has developed a process for the elinination of waste in cutting men's shirts and drawers. Mr. Clements said that in emergency he would offer the patent to the government. He holds patent rights.

Number of Worsted Spinning Spindles per Operative

(Continued from page 26)

that may be realized by good lighting, which will enable the operative to see all the ends from the aisle. The operative need enter the aisle only when a spindle needs attention. An observation of the condition of a side takes only a fraction of the time that is required to walk the length of the aisle, so that the advantage is considerable.

Fig. 6 illustrates the circuit when several frames are arranged end to end, and the lighting is sufficient to observe the condition of the spindles from the aisle. The main advantage it has over the arrangement shown in Fig. 5 is that one-third of the sides are along the inner observation path and may be attended without additional walking.

The comparative advantages of the different arrangements are shown in the following table of approximate circuit lengths:

Figure	Maximum in ft.	Minimum in ft.	Mean in ft.
3	470	300	385
4	285	285	285
5	285	90	187.5
6	222	86	154

The table represents a progression from the worst to the best. Just what the actual average circuit length will be in practice will vary widely between the limits given. If the breakage is low, the route may approach the minimum; but if it is high, the route may approach the maximum.

From the preceding analysis, it is obvious that a circuit of irregular length is most desirable to give the highest frequency of visits. Such a condition, however, requires special treatment in the calculation of sides per operative, because the walking time per visit becomes highly irregular. Where an end requires attention, that side is visited in fact; where no attention is required, it becomes an "optical visit" with equally good results.

This difficulty can be taken care of in two ways, one being to evaluate W on the basis of the minimum path and add to each of the other time-study values a walking allowance corresponding to that required for the departure and return to the path. The other method is to base the walking time W on the maximum path and make adjustments on the resulting answer according to judgment. The former method will give more accurate results, but will require more extensive time-study work.

It should be emphasized that such mathematical analysis of a complex problem can only be used as an index upon which to base the assigning of work to the operative. Contrary to the case of most mathematical formulas, this one will be very difficult to prove either right or wrong without checking the results over a long period of time. Even if the results of the formula give an incorrect answer of considerable magnitude, it is obvious that near the point of greatest economy as illustrated in Fig. 1 there is a fairly large range of variation of sides per operative which has little effect upon the final cost.

This concludes the series of five articles by Mr. Bishop on calculations for production standards and piece rates in worsted-yarn manufacture. Previous articles appeared May 24, June 14, July 19, and Oct. 11, 1930.

Don't Be Afraid of The Microscope!

Article XI
Photomicrographic Technique (Cont.)*

By Edward R. Schwarz, S.B., A.T.I.

DEVELOPING negatives and obtaining good prints from them are not particularly difficult procedures. If the worker will follow the directions which accompany the various standard supplies, and will record the results which he obtains with some systematic pains, his own experience will, prove a rapid and thorough teacher. The details of varied treatments, which for special circumstances will sometimes be of consequence, can be obtained from standard reference works on photography.

Use of some standard preparation is advocated for the developing and fixing of negatives and for the handling of prints. In the case of the photomicrographer who is engaged only periodically in this field it is hardly worth while to mix large quantities of solutions to keep in stock, especially when the chances of their deteriorating are quite high. For both negatives and prints the powders sold in small cardboard or glass tubes will prove inexpensive and convenient. They furnish enough solution when added to the recommended quantity of water to treat as many plates or prints as are at all likely to be handled at one time. They will keep indefinitely and occupy little storage space, since they are in the dry form. Such stock solutions arranged for dilution upon use as are suggested by the manufacturers of the plates, films, or printing paper employed will work well. Whatever the source of the developer, an old or discolored solution should never be used. It is much cheaper and far more satisfactory in the long run to make up a fresh supply of developer than to ruin or stain a negative or print beyond repair.

Essential apparatus for the dark room includes three enameled or heavy glassware trays—one about 4x6 in.;

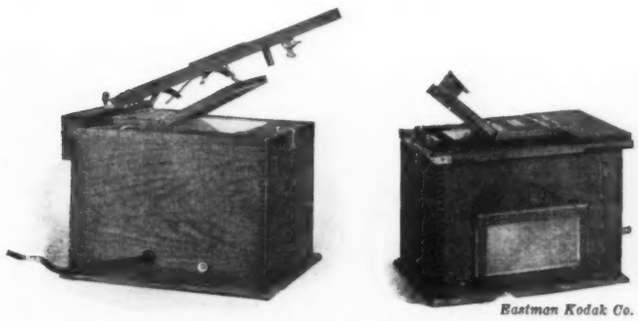


Fig. 9. Printing boxes

and the other, about 14x20. The first is intended for developing of one plate at a time, and for handling prints. Where more negatives are to be treated simultaneously, a larger tray should be provided. The other two serve respectively for fixing and rinsing baths. The fixing bath is prepared from stock powders, and several quarts should be made up at a time. It is good until exhausted and will last for weeks in normal use. When the clearing action perceptibly slows down, the solution should be thrown away, and a new lot made up. *Never attempt to tone up an old solution by the addition of Hypo.*

For measurements of solutions, an 8-oz. glass graduate is needed, and a combined thermometer and stirring rod will prove a decided convenience. Other pieces of equipment include a printing box (Fig. 9), safelight, siphon (Fig. 10), interval timer registering seconds, timer which rings a bell at the end of an interval of any number of minutes up to one hour, and a covered vulcanized rubber tank for storing the fixing bath. A plate washer (Fig. 11) can also be used to advantage which will free one tray for use with prints only. Arrange the trays so that enough light reaches them from the safelight to enable the worker to see what is going on clearly. The author prefers to make up a special safelight for mounting on the wall immediately in front

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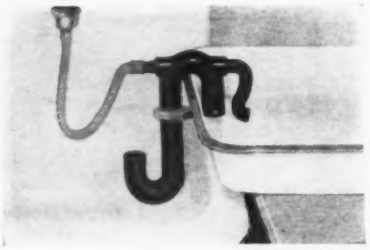
In previous installments of this article, Professor Schwarz described the apparatus and technique required for making photomicrographs and discussed the importance of correct time of exposure and proper use of filters. He now lists the essential darkroom equipment, emphasizes the importance of correct choice of printing paper, and outlines the methods used in color photography.

*Article I, "Possibilities of Microscope in Textile Industry," April 27, 1929; Article II, "Types of Microscope Applicable to Textile Industry," May 18; Article III, "Handling the Microscope with Efficiency and Understanding" June 22 and June 29; Article IV, "Methods of Illumination," Aug. 17; Article V, "Useful Accessory Equipment," Sept. 21; Article VI, "Textile Micrometry," Oct. 26; Article VII, "Mounting Textile Specimens," Dec. 14 and Dec. 21, 1929; Article VIII, "Preparing Cross-Sections of Textiles," Jan. 18 and Feb. 15, 1930; Article IX, "Recording Data," May 24 and May 31; Article X, "Photomicrographic Apparatus," Aug. 16 and Aug. 23; Article XI, "Photomicrographic Technique," Dec. 20, 1930 and Jan. 24, 1931.

of the operator. This carries one or more of the larger sized safelight filters, and has the latter set in at an angle so as to light both the bench below and the room as a whole as well. Additional illumination is provided by a safelight in the side of the printing box. The wooden rack (Fig. 12) is convenient for holding plates after they have been washed, and the combined heater and fan (Fig. 13) facilitates drying of the negatives.

Photomicrographs are best taken on $3\frac{1}{4}$x$4\frac{1}{4}$-in. plates and these may be stored after development in the usual manila envelopes supplied by any dealer in photographic material. (See Art. IX, Fig. 15, May 31, 1930.) For making prints glossy paper, 3x4 in., will, as a rule, be found most convenient. [Study of the instructions given in literature on photography, coupled with a little experience, will enable the operator to develop negatives and prepare prints in a satisfactory manner, to select the type of paper which produces best results, and to vary his technique to suit the varying conditions encountered in photomicrographical work with textiles.—*Editor.*]



Eastman Kodak Co

Fig. 10. Automatic tray siphon

Fig. 11. Plate washer

After the prints have been developed and thoroughly washed, they should be removed individually from the washing tray and placed in rows upon a ferrotype plate. The latter is made of thin sheet metal 10x14 in. or larger, specially enameled and treated with wax. (Various patented solutions are available for renewing this surface periodically). A heavy white blotter slightly larger than the plate is placed over the face-down prints, and the surplus water squeezed out of them under pressure of a light squeegee roller. When this action is complete the prints should be formerly fixed to the surface of the plate. They should be dried in this state in the same manner as the negatives. When they are thoroughly dry they will spring free from the plate and can be lifted off easily. Never force the prints from the plate. (Squeegee plates should be kept free from dust and should be absolutely clean before use.)

Choice of Paper

A number of different types of glossy paper are on the market and the results produced differ quite widely. A good knowledge of the advantages and limitations involved will save trouble and produce better pictures.

For example, it is often desired to prepare prints of photographs taken by means of the Schwarz metal-slide method for sections. Here a black background and white sections are desirable. If No. 1 paper is used and the exposure is adjusted to give white fibers, the background will be light gray and the contrast poor. On the other hand, if the exposure is lengthened to give a black background, the fibers are gray. To obtain a satisfactory result a No. 5 paper should be used. Here white fibers are obtainable on a black ground. Prints obtained with various types of paper are shown in Fig. 14. Of course, this method is only applicable when it is not necessary to show internal structure in the sections, or when there is none to show. Choice of paper, therefore, depends largely on the character of the negative and the results desirable in the finished print.

Eastman Kodak Co.

Fig. 15. Enlarging outfit

Color Photography

When the monochromatic rendition as described, proves inadequate, use of direct color photography is a convenient solution. The resultant pictures are transparencies. Each is a reversed negative bearing the image in full natural color when viewed against the light, or when projected with a stereopticon. Because of this latter use, plates $3\frac{1}{4}$x4 in. are recommended, since the $3\frac{1}{4}$x$4\frac{1}{4}$-in. plate will not fit standard lantern slide holders.

Naturally, since the plate is sensitive to color, it will not be safe in the ruby light of the dark room, nor, in fact, in any colored light. Thus, all operations must be carried out in the dark, and since no inspection of the plate can be made to control development, the time of immersion and the temperature of all solutions must be carefully controlled according to instructions. Further, this procedure calls for the time of exposure of the negative in the camera to be exactly right. Fortunately this is not a matter of guess-work directly. The correct time can be determined for a normal negative on an ortho plate, and then the time thus determined, can be multiplied by the factor (usually 30) as indicated by the makers of the color plates on the box containing them. Use of the ortho plate in the first instance is resorted to because of the much greater expense of the color plate, and hence a greater loss if the plate is wasted.

The author recommends the use of the Agfa color plate; and when once the user has familiarized himself with the simple directions, the process will be found much less difficult than the preparation of a lantern slide.

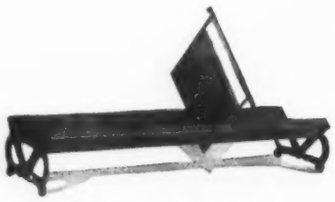


Fig. 12. Rack for plates

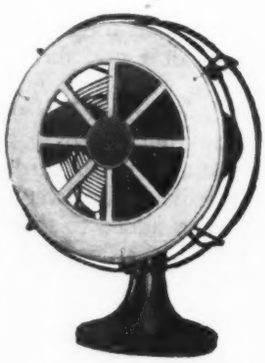
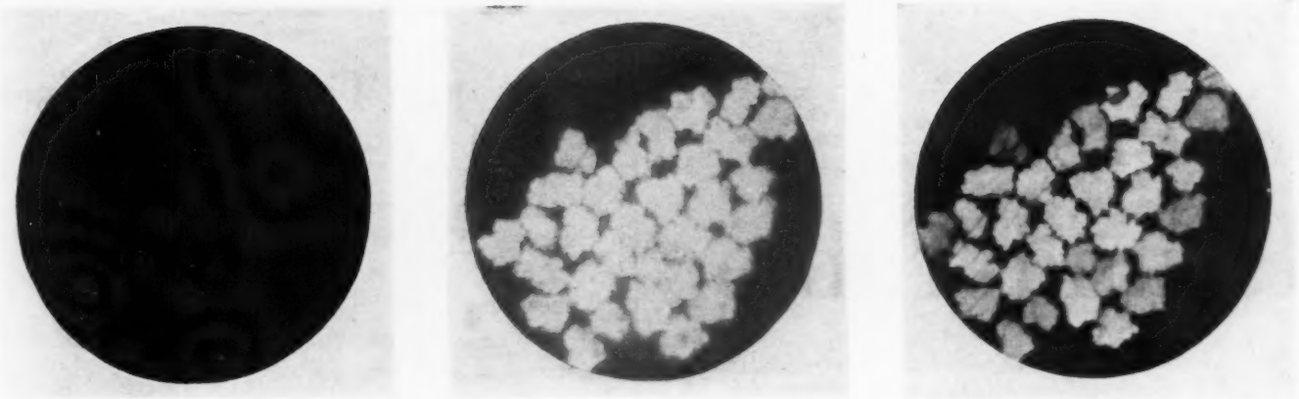


Fig. 13. Combined heater and fan



Printed on No. 1 paper to give black background

Printed on No. 1 paper to give white fibers

Printed on No. 5 paper to give white fiber on black background

Fig. 14. Prints obtained from the same negative with various types of paper

Since the color plate is most likely to be used for the recording of the colors resulting in the specimen from the use of polarized light or of differential illumination, the conditions are fairly well standardized, and only two or three times of exposure will ordinarily need to be found.

When the plate has been developed and washed, the colors should be brilliant and clear, although probably not as intense or saturated as the original. If the colors are dull and the general effect is too dark, the exposure in the camera was *too short*. If the colors are very weak and the plate as a whole is flat, the exposure was *too long*. This apparent paradox is explained by the fact that we are dealing with a positive, rather than a negative.

To protect the delicate emulsion surface of the plate, as soon as it is thoroughly dry, it should be bound up with a cover glass just like a lantern slide. The finished picture may be used for projection, or viewed against an illuminated ground-glass screen. In the former case, care should be taken that the picture does not remain too long in the projection lantern, and that there is no danger of overheating the emulsion in the duration of a normal showing. Results obtained by projection through a 'daylight' screen are particularly fine, and even the faintest shades and hues show to better advantage than they would by reflection from the ordinary screen.

Readers interested in the preparation of color prints will find an admirably arranged discussion of this subject by Curtis.

Photographic Enlargements

It has been pointed out many times that too great an initial magnification defeats its purpose in photomicrography. It is usually much better to take the picture at only sufficient magnification to show the desired detail, and then to enlarge it photographically. A suitable enlarging apparatus is shown in Fig. 15. Essentially it is a projection device by which an enlarged image of the negative is thrown onto a sheet of sensitized paper, which is then developed like an ordinary print. Its special features lie in the holder for the negative, provision of a safe filter, so that the size of the image can be governed and the detail of the picture examined by light which will not affect the paper. Provision is also made to focus the negative automatically no matter what the degree of enlargement is. A scale gives readings of the amount of enlargement by convenient intervals. The light used is powerful (usually 1000 watts) and must be used sparingly to avoid overheating of the emulsion. Exposure time is usually about 15 to 30 seconds. Complete directions in the form of a printed booklet accompany the instrument.

Increased Rayon Use Probable

By Leon H. Ryan

General Manager, Delaware Rayon Co.

THE rayon industry during 1930 has passed through one of those periods which every new industry must face. New plants, additions to old ones and more efficient operation have resulted in a gradual increase of production in this country until the consumption mark was passed.

Business conditions, hesitancy on the part of knitters and weavers to produce stock, and hesitancy on the part of the general public to buy, have further accentuated the situation.

The result has been a decrease in the estimated consumption of yarn but we believe that when the figures of the annual statistics are compiled it will be found that rayon has suffered less in proportion to other yarns. This is an indication that we are going to see, during the year 1931, a substantial increase of tonnage in rayon produced and consumed which will be directly comparable to business conditions in the country.

During the year many new uses were found for rayon and it has been clearly proven that, regardless of the price at which many of the textiles are sold, rayon has found a definite place with the ultimate consumer and many garments will be purchased because they are made of rayon.

It seems to us that all commodities have been at their bottom prices and we look forward to the rest of 1931 optimistic that there will be more rayon yarn used than can be produced in the domestic plants.

Overseers' Round-Table

THIS department offers a new subject for discussion each week and gives readers' comments on problems introduced during previous weeks. The subject which was opened four weeks ago is closed this week and a summary of contributed ideas is given on opposite page

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Ownership of Formulas

Editor, Overseers' Round-Table:

FORMULAS AND records which an overseer may have while in the employ of a mill should be the property of the mill and considered as the records of the mill. When a bookkeeper, or time-keeper, leaves the plant does he take with him the books which he has kept for the mill? I consider one just as much the property of the mill as the other.

The mills that have been a success are not near-sighted enough to think that they can take records, employ a cheaper man, and get results. If records were all that were necessary for success the man with practical experience would not be in demand. The college man, with all his records and theories, must have practical experience before he is a success.

S.S.R.

Editor, Overseers' Round-Table:

AS THIS week's discussion strikes home, I feel qualified in stating that the company has the right to demand all formulas and written rules used in the plant. But what good will be derived from possession? Take the dyer's formulas for example: What guarantee is there that they are any good in somebody else's hands? As a rule the dyer's formulas are just a starting point and continually changed with the seasons, and even within the season, and no two dyers will use the same dyes for a given shade.

As Pete said, it is the knowledge of the dyer and his experience that keeps the work going in these rapidly changing times and not the formulas. The overseer who is afraid to turn over his records, rules and formulas to the company for fear of losing his job shows an inferiority complex and is a beaten man.

N. D. WHITE, Davenport Hosiery Mills.

Editor, Overseers' Round-Table:

AN OVERSEER who has a secret formula or rule for processing different classes would be doing himself an injustice to turn these formulas over to the company. There is no doubt that he has spent considerable time—and yes, money also—to gain this knowledge. Why be so dumb as to turn them over and in a short time be looking for a job or receive a cut in wages?

After all, the company is interested in getting quality production and should not be so inquisitive as to pry into the overseer's methods. As far as the overseer getting sick and holding up production is concerned, this is not so. Most every overseer has someone to turn to when he is sick or absent.

The company is not paying for formulas and every overseer should guard his formulas, as we are hired for organizing a working force and producing.

J.P.

Editor, Overseers' Round-Table:

YOUR PROBLEM of the overseer turning over his formulas to the company reminds me of a few years ago, when blessed, or otherwise, with a systematizer. On entering the office I discovered the gentleman copying down a number of formulas.

The Overseers Discuss

"I'VE got a problem this time," George spoke up before the overseers were fairly settled in their chairs.

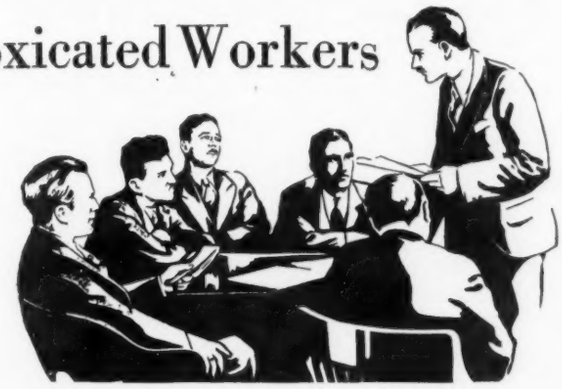
"Fine," Superintendent Chase settled back, "go ahead and shoot."

"Well," George said, "they say you can always start an argument about prohibition." He was interrupted by various whistles and groans from the other overseers.

"Now, now," he continued laughingly, "if you would only let me have time I was going to add that it is not my purpose, however, to start any such argument. What I want to find out about has really nothing to do with prohibition as such, but it is sort of along the same lines. To get down to facts, I had a man come into my department not long ago who was a bit too lively—if you get what I mean. Well, I dealt with the case in a certain way that I thought was right, but later I heard that many of the workers thought I had been too rough because another overseer had treated a similar case a lot easier some time before. This makes me think that it would be a good thing if we talked it all out and arrived at some rule which we could all follow so there would be no cause for any differences which might lead to bad feeling."

"As George points out," Pete held forth, "these things don't happen very often, but I think that he is right that we should have a uniform rule for all to follow. When a man is outside the mill he is not in my charge and I don't feel that I should pay any attention to his conduct, but when he is in the mill I am responsible for him. This is the day of machinery, and, as they say about autos, you can't mix whiskey and gasoline—although some wise bird said the bootleggers were evidently doing it from the taste of the stuff. At any rate, no man who has had something to drink should be allowed around machinery. There are too many chances for serious accidents and the general effect on the rest of the help is very bad. I am in favor of

Intoxicated Workers



a rule that if a man comes in the mill under the influence of liquor he should be sent home at once and laid off for two weeks. If he actually brought a bottle in with him I'd lay him off for a month. In either case he'd go out for good on the second offense. I'm in favor of taking no chances in the mill."

"I don't want you to think," Bill boomed, "that because I'm arguing against Pete I'd let drunks hang around my department, but I am in favor of not having any rules. Every case is different. Some faithful old workers may slip because his only daughter got married and I wouldn't want to treat him the same as I would some young buck who was trying to be smart. Then there is the degree of intoxication. I believe in being human. Often a nice talking to does more good than stiff punishment."

"But once you are easy on one—" Pete came back.

"Time!" George called. "I can see where I started something."

◆

How do *you* think that intoxication should be handled in the mill?

Overseers and others are invited to discuss this and other questions brought up in the super's talks. Letters accepted and published will be paid for without regard to length. Brevity is desirable.

"Good morning," I said pleasantly. "By the way, do you play the piano?"

"No," he answered, "I know very little about music."

"Suppose," I said, "on your way home you bought a piece of music. Would it be of much use to you?"

"No," he replied, "I guess it wouldn't."

I then told him that he was welcome to the formulas, but that we would find them of little more use than the sheet of music.

We all enjoy the feeling of ownership, but the fact is that a formula is no longer ours after having been made on the company's time, from the company's drugs, for the benefit of the management. In these days an accurate account of costs must be kept by the management and this is impossible unless the amount of drugs used in dyeing a lot of goods is known. A.V.

Delegating the Buying

Editor, Overseers' Round-Table:

I CONSIDER the control of purchases one of the most important and practical subjects opened for discussion in the Round-Table.

As the overseer is the man who has to send in requisitions for supplies in the first place, and as he is the man who knows what is wanted and what particular kind or make of supply is the best suited to the requirements of his department, he is the one who should have the final say.

A purchasing agent, or clerk, is one of the office staff who cannot be expected to know all about supplies or requirements. There should be cooperation between overseer, super and purchasing agent, and there should be one man who does all ordering for every supply that comes into the mill and no such thing as every overseer giving orders to supply salesmen, but the overseer should make the selection which would be checked and approved by the super and bought without question by the purchasing agent. A.C.

Editor, Overseers' Round-Table:

THE PURCHASING agent of a plant should have the power and complete authority to make purchases unassisted by the overseer. However, the qualities of the purchaser must first be taken into consideration. From a personal point of view, before I was able to make any purchases for the company I spent seven years in the factory learning the use of parts and supplies. After the purchaser has thoroughly acquainted himself with the factory needs it does not seem as though it would be necessary for the overseer, or anyone else, to advise him what to buy and how to buy it.

A live buyer will stay abreast of the times and keep posted on the latest developments, so that it should certainly not be necessary for the overseer to direct the policy of the purchasing department. There would naturally be no harm in conferences and suggestions, but let it be understood that the overseer will have his hands full if he takes care of the work in his department, and the purchaser must be awake enough to do his job without supervision.

RAY E. BALLARD,
Ballard Silk Co.

◆

Summary of Discussion on Turning Over Formulas to Company

No less than 78% of the replies stated that the overseer should turn over all rules, formulas, etc., to the company. This group minimized the importance of formulas unless linked with practical experience, stated that no right-thinking super would think of substituting a cheaper man just because of having an overseer's records, and maintained that the company was entitled to the formulas for cost and other purposes. The next group of 15% held that conditions, such as the fair treatment from the company and the amount of the overseer's personal time spent in development, should govern the turning over of formulas. A smaller group of 7% believed that the overseer should preserve his own formulas for his portection and because he was hired to get results not to give details.

Questions and Answers

We undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to TEXTILE WORLD. We do not undertake, however, routine analysis of yarn or fabric, or investigation involving unusual expense.

Inquiries should give the fullest information and data possible. In the case of damage to material, a sample should be sent. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as evidence of good faith.

Letters expressing opinions or voicing criticism are cordially invited. These will be signed by the correspondent's name unless the letter itself contains a request that the name be withheld.

—EDITOR.

Resisting Cotton Yarn for Picot Top

Technical Editor:

Can you advise me of any method to resist Indanthrene dyed cotton yarn to substantive dyes? The cotton is used for picot tops on hosiery. (7444)

The process of resisting cotton is covered by patents which are operated in this country by the Munitex Corp., Paterson, N. J. The process itself consists in converting the cellulose into an ester without destroying the physical appearance of the yarn. The cotton is first dyed, either with vat dyes or simply with direct colors. It is then treated with caustic alkali, as in the formation of viscose, and subjected to the action of paratoluene chloro-sulfonic acid (a byproduct of the manufacture of saccharin). The actual details of the technic of handling are not made public, but we understand that it is a rather delicate operation, likely to result in failure if not properly controlled, and requiring a special installation of machinery. We cannot say whether the patentees are selling shop rights or whether they require the work to be done at their own plant. The resist is excellent and stands both boil-off and cross dyeing. Undyed resisted yarn may be dyed by the use of colors generally used for acetate yarns, although the shades are somewhat different.

◆

Water Marks in Rayon Fabric

Technical Editor:

For some time past, we have been having considerable trouble with the finish of our rayon cloth, in that it leaves dye streaks and blotches or water marks. We are forwarding herewith samples of our fabric showing this difficulty, and as you will note this fabric does not show the even dyeing or finish which we should get. We should appreciate criticism of this fabric, and suggestions for overcoming the difficulty.

There are at least four conditions, any one of which may cause this trouble. Your rayon must be thoroughly scoured and rinsed before dyeing; otherwise soap or oil left in the goods will cause dye streaks. The proper selection of the dyestuff used is important. Dyes must be easily soluble, and must also dye evenly. The most level dyeing colors should be selected. The dyeing assistants should consist of soap, and in most cases 1 or 2%, on weight of goods, of trisodium phosphate, and at times, glauber or common salt, whichever is recommended by the manufacturer of the dyestuffs being used. Trisodium phosphate acts effectively as a leveling agent in dyeing rayon. And last, the temperature plays an important part; the goods should be started cold, and brought slowly to the dyeing temperature. This dyeing temperature should be maintained for ¾ to 1 hour to insure level dyeing on the cloth and good exhaustion of the dyestuff. We might also mention that an even distribution of steam in your dye liquor is necessary, otherwise this might help toward uneven dyeing due to uneven temperature of your liquor. A check on your present method with the things suggested here for evenness should show you where your trouble is located.

We reprocessed the sample which you sent in a bath made up with about 4% of olive-oil soap and 2% of trisodium phosphate on the weight of the goods. We entered the cloth in a cold bath, which was brought slowly to 160° F. and maintained at that temperature for 1 hour; washed well; and dried. You will note that the color has practically all evened up on the fabric.

◆

Manufacture of Multigraph and Typewriter Ribbons

Technical Editor:

We are about to enter the manufacture of typewriter and multigraph ribbons and we wish to obtain any and all information that we possibly can in connection with this line of business. Particularly we would like to obtain detailed information regarding the art itself and are wondering if you could give us the names of any books treating on this matter. (7461)

So far as we are aware, there are no books or publications dealing with the manufacture of these products. Typewriter ribbons are classed as narrow fabrics, the manufacture of which is described in a series of articles now appearing in TEXTILE WORLD. Multigraph ribbons usually are not classified as narrow fabrics. Each type of fabric requires an entirely different type of machine for its manufacture.

Multigraph ribbons are generally made on small fly shuttle cloth looms with a reed space not exceeding 24 in. The yarns must be of the very best grade of combed Sea Island or Egyptian cotton and must positively be free from knots, slubs, etc. The interlacing is plain weave, the selvages must not be bulky, and the woven material must be flawless throughout its entire length.

So far as we know, none of this material is at present made in the United States. Scotland and England are the chief sources of supply.

Typewriter ribbons are made on narrow-fabric looms (rack and pinion) varying from 42 to 84 spaces, and the details of manufacture are practically the same as

for other narrow fabrics. The tube yarn is set up in the creel of the warper and wound on small loom beams. The loom beams are then placed in the loom and the drawing-in takes place. Customer's specifications usually prohibit the use of paraffine or other wax in the process of weaving because of the danger of injuring the absorbency of the woven material. Warp and filling are of good quality yarns and range in size from 100 two-ply to 200 two-ply, or the single-ply equivalent.

◆

Streaks in Hosiery

Technical Editor:

Enclosed herewith you will find a stocking for your inspection. This stocking was degummed in soap, and dyed in a paddle machine. I am at a loss to know what causes the pressure marks on the stocking, and shall greatly appreciate any information you can give. (7448)

The disfiguring marks on the stocking sent for inspection were caused by the goods remaining idle in a pile, either on the bottom of the paddle machine while still warm previous to being dyed, or by the goods having been kept too long in a damp condition before being boarded. This stocking shows that deep wrinkles have been dried in it. The marks are very prominent and are difficult to remove. We have tried wetting it out in warm water and boarding again while quite damp, but the wrinkles seem to be quite permanently established. Possibly stripping the color, redyeing, and boarding immediately may help some in pressing out the wrinkles. Otherwise there is no remedy. These marks are not caused especially by any pressure. Heavy-weight hosiery of this kind should never be allowed to remain for long in a damp condition; and the sooner hosiery is boarded after dyeing, the better the finished product will be.

◆

Chafe Marks in Silk Hosiery

Technical Editor:

I am enclosing samples of hosiery dyed in a rotary dyeing machine. Spun silk is used in the double heel, where you will notice a chafed-like appearance. My method of dyeing is as follows: I boil in very finely meshed bags for 45 min., with boil-off oil and dyestuff. I then add 20% of glauber salt, boil another 15 min.; and rinse well. Will you kindly advise me what causes the chafe marks. (7441)

We have inspected the hosiery in question, and find that the heels are indeed disfiguring an otherwise well-knit hose. The fact that spun silk was used in the double heels is undoubtedly the reason that so much chafing shows in the heels. We also find that there are chafe marks along the soles of the stockings. Since no spun silk occurs in the soles, it indicates that the stockings were chafed in the boil off, either from too harsh or too long a treatment. Finely meshed nets are not the best kind of bags to use for fine hosiery dyeing, unless they are lined with muslin or cheesecloth, or made of very soft material. Many dyers today have adopted muslin bags for dyeing fine hosiery to minimize chafing of the goods. This procedure usually gives good results.

THOUSANDS of inquiries are handled annually by the Technical Editors. In order that as many readers as possible may benefit from this service, we select problems of general interest for publication each week.

Using spun silk in the heels, or any other reinforced part of the hosiery, is not good practice. Spun silk will not match well with the rest of the stocking and will cheapen the garment much more than the saving effected. Spun silk is made with waste silk of all kinds, and the first operation to which it is subjected in the spinning mill is a thorough boiling off to discharge all the sericine and other impurities in the waste silk. The boil-off makes it soft and workable in combing, drafting, spinning, and other operations. After it is knitted into hosiery and again boiled off, its affinity for dyestuffs is considerably lower than that of the reeled silk. This fact makes a good union impossible and increases the liability of chafing, for which there is no remedy.

◆

Distorted Stitches in Rayon Run-Resistant Fabric

Technical Editor:

We are sending you pieces of run-resistant fabric made on a 28-cut Wildman machine of 100-denier rayon. This cloth comes off the knitting machine in a normal condition; but when wet out in the dyehouse, it develops bad stitch distortions which we have been unable to clear up. Any suggestions you may offer will be greatly appreciated. (7457)

In looking for the cause of stitch distortions, it is well to consider first of all what condition the yarn is in. It might be that if the yarn is bought on cones, it has been in wound form for some time. By the time the knitter gets it and is ready to knit it, the desired amount of pliability may be lost, so that it will not yield readily or properly to the machine adjustments made; in other words, will not stay where put. The usual method for overcoming this difficulty is to rewind the yarn, applying an emulsion in the process. It must not be allowed to stand any length of time before being knitted. Many mills buy the yarn on skeins, and dope and wind it themselves again using an emulsion.

We notice that the distortions appear to be more on one side of the cylinder than on the other, and that some needles seem to streak more than others. This might be caused by bad needles.

On the unfinished piece of cloth, some of the ribs appear to be farther apart than others. This would indicate that the needles have not been trued up close enough to be the same distance apart.

We suggest that you set the yarn guides as close to the needles as possible in order that

the yarn will surely be laid to the needles as wanted, or as calculated by the adjuster. Every other needle should be set higher in this kind of knitting. It is necessary of course to see that the yarn clears the lower needles well; if not, the yarn may split and hang on the needles.

◆

Removing Oil from Gray Goods

Technical Editor:

We are enclosing herewith a few samples of cotton fabric showing dyeing resist from gray mill oil on warp or filling threads. We shall be glad to have you advise us of any information you have or may obtain which will be of assistance in treating goods which after dyeing show this resist so that they can be redyed uniformly, or any suggestion as to treatment in bleaching which would overcome this trouble whenever or wherever it might be present and so eliminate the necessity of special treatment in dyeing.

If you can give us above information it will be very much appreciated, or if you have no suggestions to make, we would appreciate your advising us as to whether or not other bleacheries are successful in entirely overcoming and eliminating this trouble. (7453)

The removal of mineral oil from fabrics presents a problem which is not very easily solved. This is especially true if the oil is from a bearing and contains metallic particles. A clean oil is easily removed, but the process requires special work which the ordinary cheaper fabrics will not warrant. Most mixtures which will remove oil from a fabric require some rubbing or scraping of the fabric after the application to the spot. As a rule, kier boiling and the other bleaching processes will not remove a stubborn oil stain. A compound which works with a fair degree of success is composed of a pine-oil soap with a small amount (10%) of silicate of soda. This is applied to the stain before scouring. Apply quite liberally and rub well into spot. The scouring which follows, if thorough enough, will clear up the fabric. This mixture should leave nothing in the fabric which will interfere with the dyeing procedure.

◆

Rendering Cotton Piece Goods Fast to Dilute Acids

Technical Editor:

I shall appreciate any information you can give me as to whether or not there is a process for treating cotton piece goods to render them impervious to dilute solutions of mineral acids. If there is such a process, I should like to know whether it is commercially practicable, and what would be the approximate cost per yard of goods so treated. (7427)

We know of no method that is used commercially to render cotton piece goods impervious to dilute mineral acids. So long as the acids remain dilute, say 5% or under, cotton is not readily destroyed. The trouble comes when the cotton dries out. When this occurs, the water evaporates, making the acid concentrated, and the concentrated acid tenders the cloth.

If the acid is used warm, a rubber coating could be used which would extend the life of cotton piece goods. If the solutions are used under 100° F., the pieces could be treated with a hot wax solution, such as paraffin. This coating would resist the acid as long as the wax coating did not crack and let the acid enter the fibers. The process would be inexpensive, so far as materials were concerned, since the wax can be bought for less than 5 cents per lb. If it were applied hot and squeezed into the piece, the piece would not take up more than 15%.

A flexible coating which is highly acid resistant can be made by using a lacquer (such as Duco); thinning it down to consistency with acetone, alcohol, or other suitable thinners; and using a small amount of a plastic agent such as triphenyl phosphate, to keep the lacquer film from becoming brittle. This coating is relatively cheap because it can be made from scrap celluloid and the like. It can be applied cold.

◆

Brown Spots on Black Hosiery

Technical Editor:

We are enclosing a single stocking which we have endeavored to dye black after it has been through the following processes: originally dyed black, stripped, and redyed. The stripper did not clear evenly, leaving brown spots. Kindly make an examination of this stocking, and advise us whether or not there is any possible way to clear this stocking of spots; or if not, whether it is possible to dye it an even black. We would also ask your opinion as to what caused these difficulties. (7459)

We have examined the stocking submitted with this inquiry and have made sufficient tests to lead us to believe that the brown spots are caused by mildew. The mildew occurred either on the original gray goods or on the stripped goods, where it was caused by allowing them to lie around in a wet condition too long after the original color had been stripped off.

As a matter of confirming our opinion we stripped the sample submitted with Protolin L. to permit better examination. The mildew spots were more thoroughly brought out by this operation. We are returning herewith the stripped sample to show that the spots are of an organic nature.

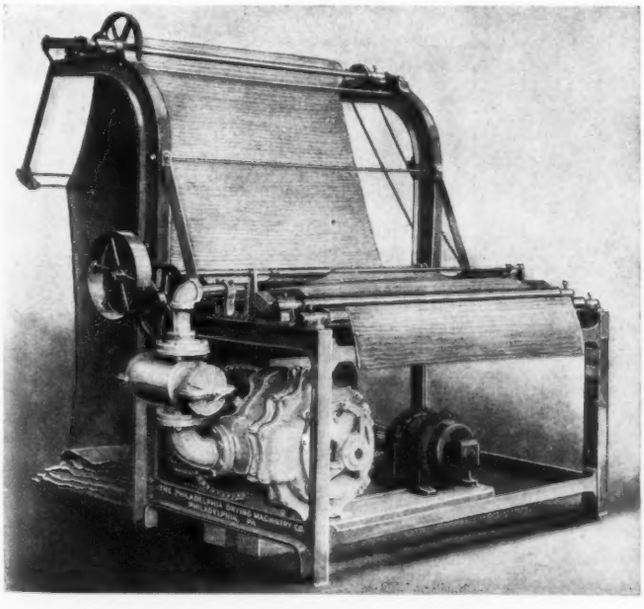
We know of no satisfactory method of uniformly dyeing goods with mildew spots, and recommend black as the most satisfactory color. The spots may then be brought up to a fairly good level shade by aftertreating the dyed goods with a finishing emulsion containing a high percentage of mineral oil. We suggest a solution made up of about 85% high-grade mineral oil (something of the type of a good sewing-machine oil) 10% pure lard oil, and 5% olive-oil soap. Bring this mixture into an emulsion by boiling in a small vessel or bucket until the soap is thoroughly dissolved and all evidence of free mineral oil floating on the top has been removed. If necessary, a small quantity of soda ash may be introduced. Use 2% of this solution calculated on the dry weight of dyed goods as an aftertreatment, applying at a temperature of around 140° F., for 10 to 15 min. Make up only sufficient softening solution to work one lot at a time and use as soon as brought into solution. We believe this aftertreatment will improve the uneven appearance of the goods and will produce a much brighter black.

New Machinery & Processes

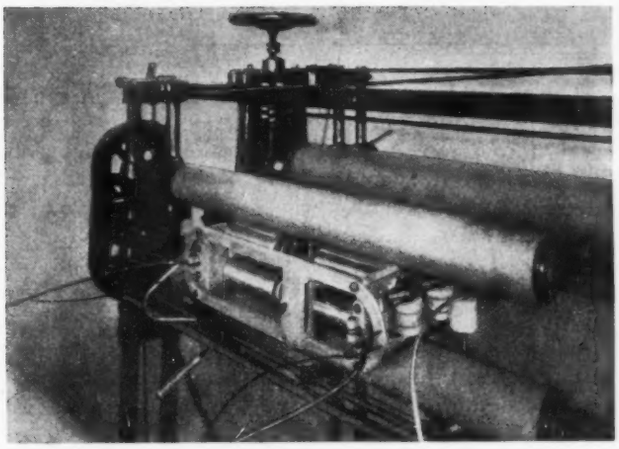
Vacuum Extractor

AN IMPROVED "Hurricane" vacuum extractor has been brought out recently by the Philadelphia Drying Machinery Co., 3351 Stockley St., Philadelphia. Originally designed for extracting plushes, velvets, and corduroys, this equipment has more recently been adapted to removal of moisture from sheer fabrics of silk, rayon, and cotton. The most obvious advantages of continuous vacuum extracting is that it eliminates the necessity of batch operation and permits open-width treatment in tandem with other equipment. It is pointed out, also, that the vacuum extractor provides uniform removal of moisture over the full length and width of the fabric, and at the same time prevents wrinkles and creases.

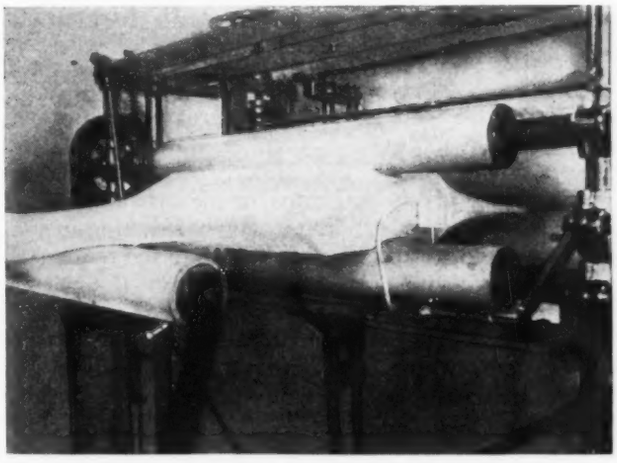
Among the improvements possessed by this improved "Hurricane" extractor is a slot-closing device which adapts the machine for the reception of cloth in varying widths. This device serves to seal all slots in the vacuum pipe situated beyond the edges of the cloth, thereby preventing leakage of vacuum. The machine is also equipped with variable-speed conveyor drives, in order to permit synchronism with other machines operated in range. Variable-speed motors for operating the vacuum pumps can also be supplied when necessary for a single machine to operate at varying degrees of vacuum on several different materials. The machine is equipped with pressure-lubrication fittings.



***Improved vacuum extractor** equipped with slot closing device*



The "propeller spreader" is an important feature of the continuous extractor for tubular knit goods



Extracting tubular knit fabrics with continuous machine of new design

Continuous Extractor for Tubular Knit Goods

DEVELOPMENT of an entirely new type of extractor for tubular knit goods is anounced by the Tubular Textile Machinery Corp., 27 West 20th St., New York. Important advantages claimed for the extractor include savings in time and labor. In addition, it is stated, the goods go to the dryer in roll form, with all twist out, spread to even width, and with water extracted evenly throughout the fabric. There are, therefore, no bright or dull spots to remove, due to uneven drying, and no wrinkles to work out. This machine performs the wet-spreading and extracting operations at one time, handling the fabric continuously in endless lengths.

Knit goods extracted on this machine pass over a propeller spreader and through a pair of squeeze rolls which force the excess water out of the fabric. The

cloth then goes to the dryer in an even roll. The term "propeller spreader" is used in referring to the spreader on this machine, because the spreader actually propels the cloth through the machine. The manufacturer states that the cloth does not encounter friction at any point, since it is not pulled over the spreader by pinch rolls. The spreader is made up of twelve driven rolls which feed or propel the cloth through the machine, and its unique design has made possible the wringer extraction of knit goods.

It is also said that with this machine the two operations of spreading and extracting are accomplished in much less time than is required for centrifugal extraction alone. Furthermore, the fabric can be spread evenly to any desired width and the yield of the finished cloth prior to cutting into garments controlled. The goods come out of the dryer and go to the finishing operation in a condition from which the desired finished width can be obtained without stretching in the finishing operation.

Bale Breaker

NUMEROUS improvements and refinements are embodied in a new bale breaker announced recently by Saco-Lowell Shops, 147 Milk St., Boston. Unique features which are incorporated in the machine are said to give simplification of design, with a resulting increase of output and lowering of costs. Among the refinements are framework and sides of extra heavy design. All joints are milled to insure maximum accuracy in fitting. The pin apron and bottom lattice apron are constructed with the strength necessary to carry full loads safely, and run over pulleys to insure positive drive under any possible loads. All drives, bearings, and shafts are designed with an ample factor of safety, thus insuring continuous operation under all possible ranges of production.

The new bale breaker departs from previous designs in the arrangement of the doffer, the pin cylinder, and doffer bonnet. A radical change of construction permits instant dismounting of the doffer bonnet by separating two hinges which hold it in place over the doffer. By simply raising the bonnet, the doffer and pin apron are immediately accessible for adjustment or inspection. When the bonnet is removed, the doffer can be lifted out, bringing the entire section of the machine forward of the pin apron and within easy reach of the attendants. When chokes occur in the new bale breaker from any cause the machine can be cleared instantly by raising the bonnet. Cotton matted on the lifting apron may be removed, or the galvanized mount cleaned out.

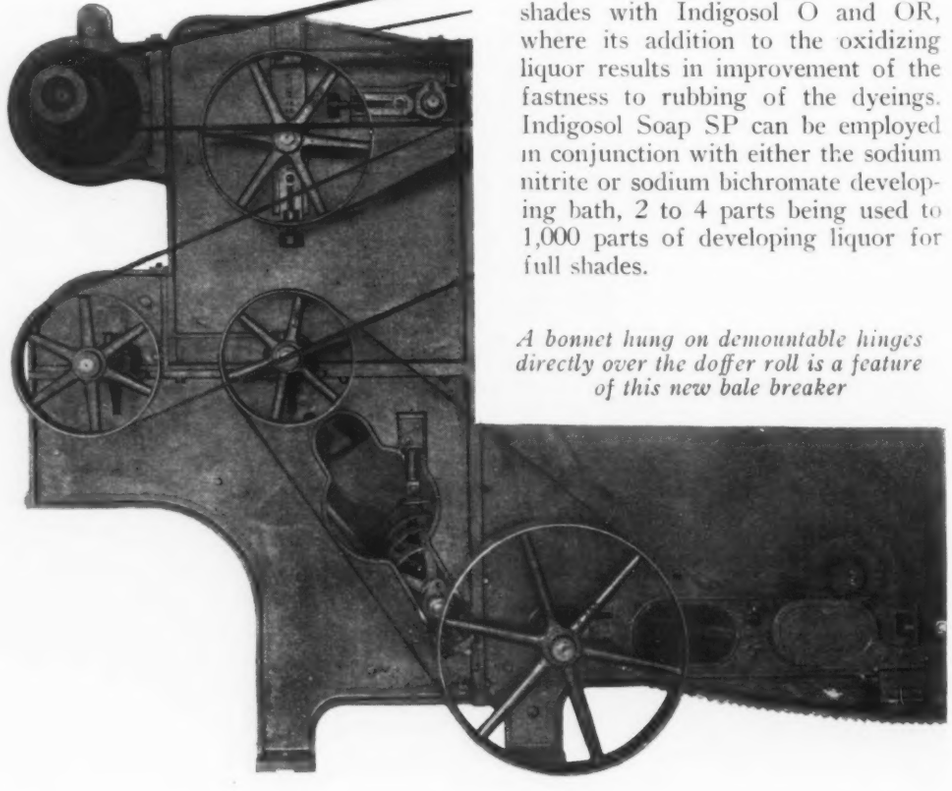
The motor is now mounted much lower on the frame than before, so as to facilitate oiling and inspection with a resulting saving of time. Another new feature is found in the baffle plate on the front of the hopper section, the purpose being to retain all the dust possible within the machine so it can be easily removed by an exhaust fan instead of allowing it to pass into the room. Throughout the machine those parts which may need changing as the requirements of production vary are so designed as to permit rapid and accurate adjustment.

Dryer for Raw Cotton

DRYING of raw cotton at the gin is facilitated by means of a machine developed recently by Sherwood Green, Berkeley, Cal. The equipment is said to dry wet cotton in approximately 30 seconds, and to have a capacity of three to five bales per hour. The new machine consists of a revolving tube, 40 ft. long and 60 in. in diameter, through which the damp cotton is blown by superheated air supplied by a gas furnace. A temperature of from 200 to 300° F. is maintained at the exhaust of the tube, varying according to the moisture content of the cotton.

Indigosol Soap SP

INDIGOSOL SOAP SP, a new dyeing assistant of interest in dyeing Indigosols on wool, has been announced by Carbic Color & Chemical Co., Inc., 451 Washington St., New York. This product, which is manufactured by Durand & Huguenin, is especially useful when producing navy blue shades with Indigosol O and OR, where its addition to the oxidizing liquor results in improvement of the fastness to rubbing of the dyeings. Indigosol Soap SP can be employed in conjunction with either the sodium nitrite or sodium bichromate developing bath, 2 to 4 parts being used to 1,000 parts of developing liquor for full shades.

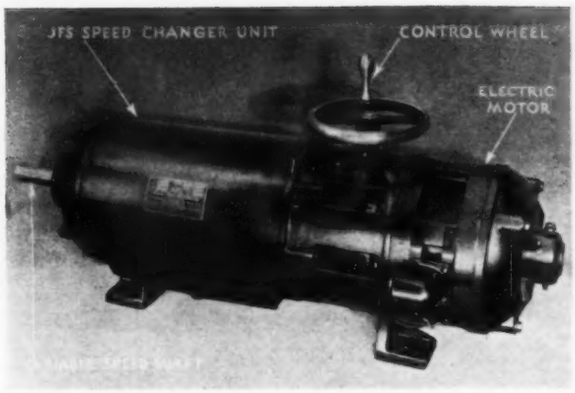


A bonnet hung on demountable hinges directly over the doffer roll is a feature of this new bale breaker

Self-Contained Variable-Speed Drive

A VARIABLE-SPEED drive, which combines motor, speed changer, speed reducer, and control in a single housing, has just been designed by Stephens-Adamson Mfg. Co., Aurora, Ill. The new drive is compact, easily mounted, and quiet in operation. Elimination of bearings, couplings, and at least two sets of gear reductions is said to give the unit a high efficiency. It is made in sizes to deliver from ¼ to 7½ hp. The unit is recommended for driving feeders, conveyors, mixers, machine tools, textile machinery, pumps, and other applications where a variable-speed drive is needed.

The unit is a complete drive in itself and is ready to couple to the machine to be driven. The motor section is usually wound to operate at 1,200 r.p.m., and the drive will deliver the power at any speed between 24 to 144 r.p.m. or 120 to 720 r.p.m. The output speed is increased or decreased while the machine is in motion by simply turning the small handwheel on top of the housing. The whole mechanism is enclosed in a single housing without any moving parts exposed except the output shaft, thus protecting both machine and operators from possible injury.



Variable-speed drive unit combines motor, speed changer, speed reducer, and control in a single housing

The drive is essentially the standard "JFS" type of variable-speed reducer with the housing modified to take the body of a standard make of electric motor. The motor armature shaft is extended and forms the high-speed shaft of the speed changer. In this way, the usual coupling between shafts is eliminated, the housings and bases are simplified, and approximately 25% of the total length and weight are saved.

New Dyestuffs

Three new dyestuffs introduced recently by Newport Chemical Works, Inc., Passaic, N. J., are Newport Fast Orange FSW, and Anthrene Brilliant Greens 2G and 4G double paste fine. Newport Fast Orange FSW is a neutral-dyeing acid color, possessing very good fastness to light and excellent fastness in most other important particulars. It is recommended for use in dyeing wool raw stock and slubbing, as well as fancy yarns for bathing suits, sweaters, etc. Silk, either pure or weighted, also dyes very well. The color not only is valuable for dyeing these fibers singly, but also in mixed goods as a shading color.

Anthrene Brilliant Green 4G double paste fine, because of its excellent working properties, is of particular interest for direct printing on cotton, rayon, and pure silk. While primarily a printing color, it dyes well on cotton and rayon. It is also valuable for application on the pad, either reduced or by the pigment-padding method. The fastness to light and boiling soap is very good, and the fastness to other important color destroying influences is excellent. It does not discharge.

Anthrene Brilliant Green 2G double paste fine, like the yellower Anthrene Brilliant Green 4G, because of its excellent working properties, is especially of interest for direct printing on cotton, rayon and silk. In fastness properties and method of application, it is similar to Anthrene Brilliant Green 4G.

Newport also announces two new direct colors, Direct Fast Scarlet 3B and Direct Yellow GR. The former produces a full, bright scarlet on cotton, rayon, wool, and silk (both pure and weighted). It is level dyeing, exhausts at a moderate rate of speed, and is only slightly influenced by metals. Because of its good fastness to light and to washing when dyed on animal fibers, it finds extensive use for this work. It discharges to a slightly creamy white, but is entirely satisfactory for use as a ground for colored discharge patterns.

Newport Direct Yellow GR is a Stilbene yellow somewhat redder in shade than Direct Yellow G and possessing the same properties and general good fastness of the latter. It is of interest for use in dyeing cotton in all stages of manufacture and particularly as a shading color in union materials of cotton and animal fibers, as it leaves the latter practically unstained. In unions of cotton and rayon the rayon is dyed weaker and greener than the cotton. It does not discharge.

A number of new vat colors have been placed on the market recently by Ciba Co., Inc., Greenwich & Morton Sts., New York.

Cibanone Navy Blue RA and Cibanone Navy Blue GA are two new additions which possess excellent fastness properties, including an outstanding fastness to spotting with water. Owing to their good solubility, these products are suitable for use in dyeing loose material, beamed warps, cops, cheeses, yarns, and piece goods. Both colors yield valuable shades of good fastness on rayon, but are not suitable for acetate yarn on account of the strongly alkaline baths. Cibanone Navy Blue RA is especially suitable for silk dyeing owing to its good fastness to boiling-off, and is of interest for dyeing yarns intended for goods subsequently to be boiled-off. Cibanone Navy Blue RA is particularly recommended for cotton and silk printing; Cibanone Navy Blue GA is less adaptable.

Cibanone Blue 3GF is similar in fastness properties to Cibanone Blue 3G except that it possesses a brighter, purer shade. Similar to the older brand, shades of the new product become duller through treatment with chlorine, but this dullness disappears by treatment with hydrosulfite or bisulfite or after long storage. It is recommended for dyeing cotton, rayon and silk, and for cotton and silk printing.

Cibanone Blue B2G is only of limited use as a vat dyestuff owing to a deficient fastness to chlorine. It is recommended, therefore, chiefly for dyeing loose cotton intended for tent material and other heavy fabrics where fastness to light is the chief requirement, and for yarns intended for hosiery and decorative materials for which fastness to chlorine is not demanded.

Ciba Orange R is distinguished for its brilliant shade and good tinctorial power. It is satisfactory for ordinary requirements in fastness to light, and in addition possesses very good fastness to water, washing, and chlorine. The new product is easily reducible; therefore the shades can only resist alkaline and kier boiling when treated carefully and possibly with some additional agent. It is recommended for dyeing cotton, rayon, silk, and wool; and for printing cotton, wool, and silk. Owing to its resistance to hydrosulfite, the dyestuff may also be used in discharge colors.

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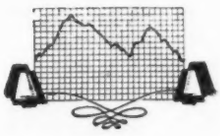
Survey of Fabric, Knit Goods, Yarn and Raw Material Markets ◆

TEXTILE WORLD ANALYST



Sound Recovery Threatened Now by Inflation

By Dr. L. H. Haney

ANOTHER month of readjustment in business has passed bringing us thirty days nearer the period when recovery from the current depression may be expected. While little apparent progress has been made and, after due allowance for merely seasonal changes, the trend has continued slightly downward, the monentum has been broken and definite signs of bumping bottom have appeared.

Assuming no outside disturbances and no further unsound interference by Governmental agencies, it can be said definitely that business on average has just about reached bottom,—that prices of most basic commodities have probably seen their lowest levels in this cycle and that, after a period of irregularity and increasing stability, a gradual recovery may be expected.

Danger of Inflation

The only doubts concern the timing of the rise, and the chief ground for doubt lies in the possibility of another premature inflationary spurt. Normally, we should now go slow. Production should be kept curtailed pending improvement in demand. Prices should be readjusted where they are out of line. Numerous economies should be effected. Meanwhile, business should be kept quiet and free from speculative excesses. Thus the healing processes could work effectively. But all of a sudden we find ourselves confronted with a flare-up of speculation in stocks and an injection of inflation threatened in the shape of a large cash payment from government funds on account of the soldiers' bonus. These are painfully suggestive of another "false start."

The bonus grant probably will involve nearby cash payments of something like $700,000,000. Some of this money will be saved, and some be used to pay off debts; but a large sum will be spent as easy money usually is. At best this will furnish but a temporary demand which might easily stimulate production in certain lines beyond sustained requirements. The effects would be passed on to related industries. Conceivably, an exactly timed and moderate dose of inflation might act as a tonic. If given at a time when business maladjustments were entirely corrected it might stimulate production in proportion to a demand that might be ready to expand normally. Such, however, does not now seem to be the case.

Business is now only getting ready to sit up. If it is to be given stimulants now and started to running before it is able to walk, a relapse may become a real danger. Far-sighted students of the situation will look beyond the short-run effects of such a stimulus.

Signs of Business Bottom

Some of the signs that a business recession has about reached its lowest levels are as follows: (1) The prices of several important basic commodities have ceased to make new lows (copper, cotton, tin, and rubber); raw materials as a group are definitely low in comparison with other price groups. (2) The estimated total value of the industrial output is relatively low in comparison with wholesale sales. (3) Industrial production is below its average relationship with the volume of freight traffic. (4) Stocks of copper and zinc have ceased to rise and have rounded off. (5) There has been an upturn in pig iron production and in blast furnace activity. (6) The total loans of the member banks are much reduced and deposits have increased, resulting in greater liquidity in bank credit.

These things indicate real progress. Building activity appears to be definitely scraping bottom. January department store sales were moderately encouraging. Such signs as the upturns in the unfilled orders of the Steel Corporation and unfilled orders for cotton cloth, in machine tool orders, and in blast furnace activity, add a touch of hopefulness. It is, therefore, all the more to be hoped that recovery will be allowed to develop normally.

Some of the reasons for thinking that it is a bit too early to get the business patient out of bed are as follows: (1) Commodity prices have not yet become definitely stabilized even in the raw materials group. (2) Many commodity prices still need readjustment to bring them in line with the general level. (3) Factory employment and payrolls have continued to decline sharply. (4) The farm depression is unrelieved. (5) Foreign trade has reached new low levels. (6) Bank credit is still partly frozen and 197 banks were closed in January.

Need of Price Readjustments

Further sound progress toward business probably must center in the readjustment of the commodity price structure. Here we find two facts outstanding: (1) Raw material prices are at or near bottom, while (2) many finished commodities and most retail prices are not sufficiently reduced. This constitutes a maladjustment which must be corrected.

Farmers can not buy from manu-

●

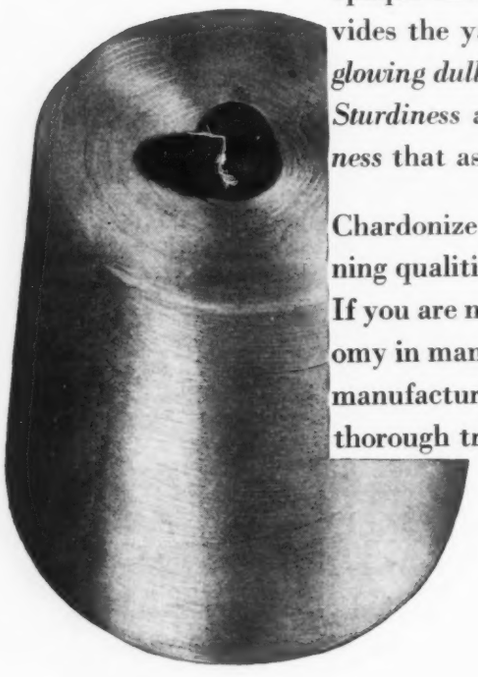
Summary: **General business appears to be near bottom. Sound recovery is threatened by inflationary developments. A period of readjustment in commodity prices is needed for sustained expansion. Cotton textiles, however, are already low in comparison with the raw material.**

The analysis and forecast by Dr. Lewis H. Haney, Director, New York University, Business Research Bureau, which regularly appears on this page, considers various branches of the textile industry from week to week. The conclusions reached in the Analyst are mostly forecasts and generally apply to a time two or three months ahead. The Analyst is based on statistical data and does not reflect temporary trade sentiment.

The OPĀKE process has given CHARDONIZE first place among dull-lustre yarns for lingerie and hosiery

There is an excellent reason for the acknowledged leading position of Chardonize in the dull-lustre yarn field . . . for its permanent, rich low lustre—its sturdiness, its beauty, its genuine, lasting *quality*. Chardonize is made by the OPAKE process, developed through years of painstaking test, experiment and improvement. Knitters everywhere appreciate what an outstanding contribution this process has been to the manufacture of hosiery and underwear.

Through this patented method, Chardonize becomes permanently opaque and diffuses rather than reflects light, a feature which provides the yarn with many of its now famous qualities. *Permanent, glowing dull lustre* that no amount of washing and wear can change. *Sturdiness* and uniformity that mean smooth, easy handling. *Softness* that assures comfort in garments and stockings.



Chardonize excels even in its put-up. Its smooth, trouble-free running qualities are the basis for the efficiency of many a knitting mill. If you are not using Chardonize, try it . . . for this yarn means economy in manufacture. It means profitable volume in sales for knitter, manufacturer and retailer. Don't wait another week to give it a thorough trial!

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facturers in normal volume when their own products are at pre-war levels while manufactured products are much higher. Many nations which produce mostly raw materials can not exchange their products with those of other nations which are predominantly manufacturing. Thus the outstanding inequality between raw materials and finished commodities acts as a barrier to trade, both domestic and foreign.

Many laborers must be paid from the earnings of industries producing the raw and semi-finished products; but all laborers have to buy retail articles, and if retail prices are high while the earnings of the employing industries are low, trade is difficult.

We present next a table which for convenience takes the averages in 1914 as a base and enables us to compare the broad movements of several great groups of commodities since pre-war times.

	Retail Prices*	Finished Products	Non-Agricultural Products	Raw Materials	Agricultural Products
1914.....	100	100	100	100	100
1928-29 peak.....	163	148	146	150	145
December, 1930...	148	121	119	110	92
Percentage change from 1928-29 peak	—9	—18	—19	—27	—36
Percentage change from 1914.....	+48	+21	+19	+10	—8

*"Cost of living," National Industrial Conference Board.

It is apparent that wholesale raw materials at the peak had risen more than any other group and were relatively high in comparison with finished commodities. In December, 1930, they had fallen more than any other main group (27%) and were only 10% above the 1914 average, against a finished commodity average that was 21% higher. Moreover, agricultural commodities in December, 1930, had fallen even more than the raw materials group as a whole, and were actually 8% lower than in 1914. Clearly farmers and raw material producers in general are at a great disadvantage in comparison with other industrial classes.

Moreover, if the cost of living index is any clue to the trend of retail prices, we must conclude that such prices rose more between 1914 and 1929 (63%) than any broad group of wholesale prices, are still the highest in comparison with 1914, and have fallen the least from their peak.

One great problem, therefore, is to get the spread between the prices of raw materials and finished commodities, and the spread between wholesale prices and retail prices, down to more normal proportions. Owing to the large stocks of many raw materials, the lack of organization and the world-wide scope of their markets, it seems improbable that much can be accomplished in the way of raising raw material prices. Thus readjustments in the other groups must probably be the recourse. It is almost unthinkable that we should wait for actual physical shortages to restore trade, for that would mean not only great delay but also a long period of reduced consumption and lower standards of living. Doubtless something is to be accomplished by breaking down trade barriers which keep excess supplies of commodities dammed up in various nations or localities (tariffs and price controls). But the general idea is that prices should be readjusted so that exchanges may take place more freely and the way be prepared for the consumers of the world to buy what they need. By readjusting prices progress will be made toward clearing the world's shelves and restoring business activity.

Market Briefs

Cotton: *Strength maintained after advance.*

Cotton Yarns: *Strong tone; demand expanding.*

Cotton Goods: *Extremely active; prices tend upward.*

Wool: *Choice merinos steady, medium wools irregular as some sellers meet market.*

Worsted Yarns: *Slightly steadier; buying light.*

Wool Goods: *Good call for plains for spot shipment.*

Silk: *Prices incline upward; moderate movement.*

Silk Yarns: *Thrown yarn prices uncertain; sluggish buying. Spun yarns steady; fair spot call.*

Rayon: *Steady buying, mostly at list; slight future trend.*

Knit Goods: *Full-fashioned hosiery strengthened by further curtailment; spring underwear and sweaters active.*

Cotton Textile Prices Low

That the foregoing situation does not apply to cotton textiles is one of the strongest grounds for hoping for steady improvement in this industry. Not only has cotton been cheap, but cotton textiles have been relatively cheaper. The rise in raw cotton in the past month or two has more than offset the increases in yarn and goods prices, and manufacturers' "replacement margins" in January were generally but little above the lowest levels of the post-war period.

But in estimating actual cotton mill earnings we allow for a lag between the purchase of the raw material and the completion of manufacturing. This lag has resulted in a rising trend in the margins actually earned since August, 1930, to the end of the year and, together with a little increase in mill activity, brought higher total net earnings. Though low, it is probable that January earnings will show an increase over December. It is not surprising, therefore, to find cotton mill stock prices showing some gains since the December low level.

Many mills must now be operating on higher cotton, however, and the margins earned per pound of cotton consumed will be reduced unless cotton textile prices advance more rapidly. A downturn in earnings' margins probably occurred in January which is likely to continue for a time and somewhat limit the possibilities of an advance in mill stocks.

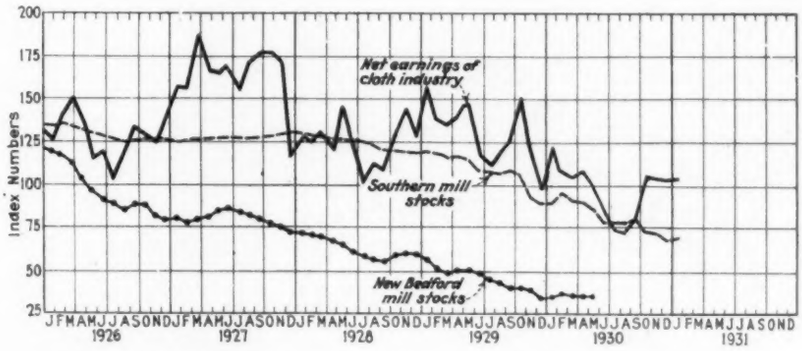
Index Numbers
200
175
150
125
100
75
50
25
Net earnings of cloth industry
Southern mill stocks
New Bedford mill stocks
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
1926
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Fig. 1—COTTON MILL EARNINGS AND SECURITY PRICES—Net Earnings in Cotton Cloth Industry—Computed from the cost of raw material, labor, fuel, etc., the price of finished goods and the volume of production (New York University, Bureau of Business Research). New Bedford Mill Stocks—Average price 25 New Bedford cotton mill stocks (New Bedford Standard). Southern Mill Stocks—Average price 25 Southern cotton mill stocks (R. S. Dickson & Co.).

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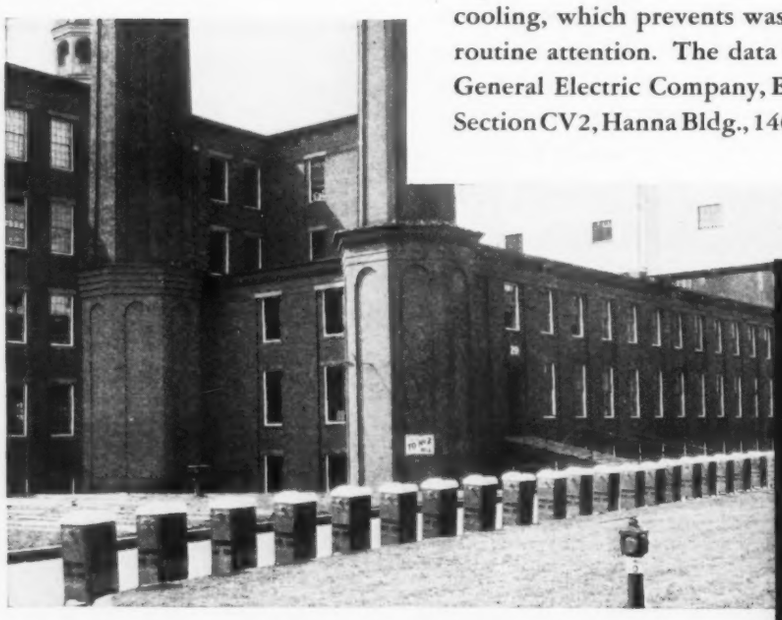

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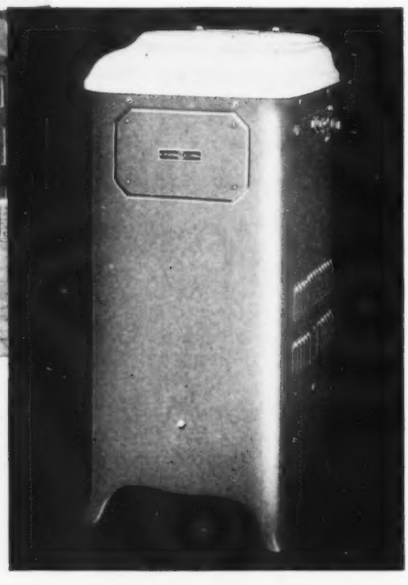


GENERAL ELECTRIC
WATER COOLERS

FABRIC MARKET REPORTS

TEXTILE WORLD ANALYST

◆Unusual Volume In Cotton Goods

STATISTICS do mean something after all. Going against the "figures" cotton goods have disappointed followers within recent months by the frequent setbacks. Since Feb. 1 fundamentals have been asserting themselves. The market during the last two weeks has been the most active that most of the larger sellers have experienced for a couple of years.

Seasonal Demand Expanding

All lines with the exception of ducks, drills and twills have been selling in larger volume than seen for this period both for spot and future delivery. There have been three main reasons for the activity. In the first place, raw cotton has surprised by its advance of almost 200 points from the low; in the second place, demand is expanding seasonally and finally, the "figgers" are asserting themselves.

Curtailment Is Felt

Heretofore buyers of cotton goods, among these several of the largest consumers, have paid little attention to the weekly and monthly statistics that have been released. These have showed sales amounting to larger yardage than has been produced for many weeks. Figures also show a continuous reduction in stocks.

If statistics meant little to them, their effect has been more powerful. Buyers now see that they are unable to obtain the goods exactly when they are wanted and this is something that they can easily understand. This inability to obtain goods when wanted is causing them to order ahead and contracts of large size running well into the summer have been placed.

Prints and Broadcloths Lead

Print cloths and broadcloths have been the market leaders, a larger yardage selling within a two week period than for several years, according to a number of the largest selling houses. The most active print cloths have advanced $\frac{3}{8}$ to $\frac{5}{8}$c. from the prices asked two weeks ago when sales of 68 x 72s were noted at 5$\frac{7}{8}$c.; this week sales were closed at 6$\frac{1}{2}$c.

Sheetings Gather Momentum

Broadcloths advanced $\frac{1}{4}$c. from the old level and sales were being made at a more active rate than at any time within recent months. One of the most encouraging features has been the expansion of sales of sheetings, 36 in., and 48 in., being active with prices, after touching a new low two weeks ago, rising $\frac{1}{8}$ to $\frac{1}{4}$c. The decision of mills to continue the curtailment program for another period also exerted a powerful influence upon the market and upon buyers.

◆Wool Goods Activity Continues

RECENT weeks have witnessed one of the most unusual conditions in the wool goods market for years. Hand-to-mouth buying had caused stocks in manufacturers' and commission-house hands to become smaller than could be remembered. Business could be done with this condition existing when there was little demand but when inquiry began to broaden things changed quickly.

While much of the improvement since the first of this year has been seasonal, trading has been more active in both men's wear and dress goods than last year and the entire market has been caught unawares so far as spot goods are concerned. Many of the mills, in both men's wear and dress goods, have been running two and three shifts in order to make up for the lack of spot supplies and to meet the buyer's delivery ideas.

Fancies Have Suffered

Stocks in sellers' hands have been exhausted. Under such conditions it is natural that plain fabrics which had either been carried in stock or that could be made up quickly with a minimum of danger to the mill would be the most popular and this has been the case in both the men's and women's fields.

Men's Wear Stocks Low

In men's wear plain blues, tans, browns and grays have been cleaned out of stocks. Of these grays in all shades have been the most active this week. Men's wear sellers trade on the basis of next season's prices but many of their fabrics have been lowered to a price basis that will not be bettered, if it will be equalled, when new season's prices are named.

Mills turning out staples in dress goods and coatings are busy, running overtime in frequent instances but manufacturers that are operating on fancies are not busy. Goods of the chonga and crepe type are wanted and manufacturers are rushing to get the goods in consumers hands before Easter, fearing that any stocks on hand then will have to be sacrificed in price. They realize that buyers changed quickly once and they will change just as quickly the other way.

Piece dyes are coming into their own this season. Manufacturers have no time to make up yarn-dyed fabrics if they are to make the deliveries wanted and the quickest goods that can be turned out are the staples moving. Many sellers look for a reversal of this trend and toward fancies next season when time is less of a factor.

◆Spring Broadsilks Clearing Slowly

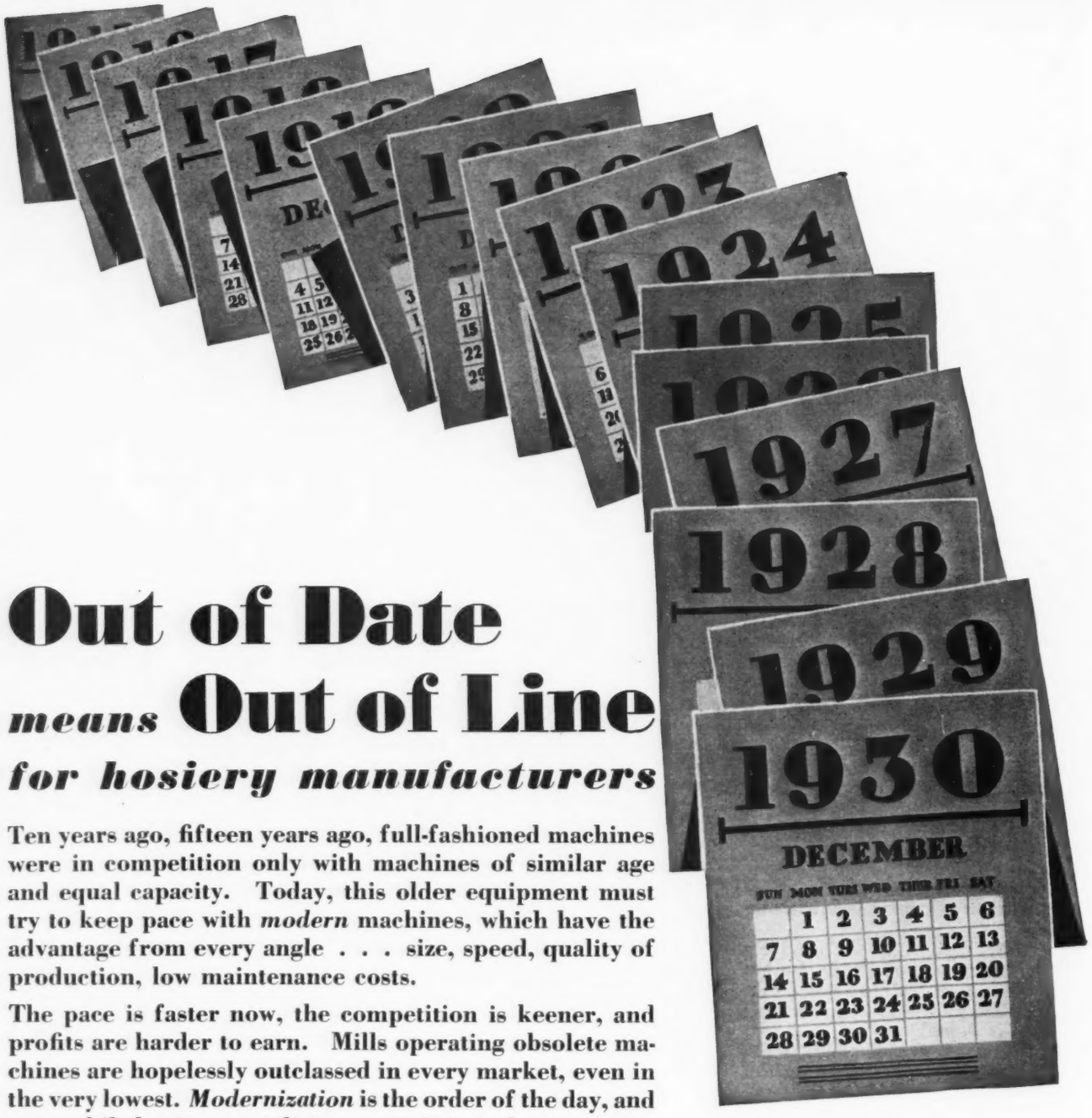
THE broadsiik market divides its attention just now between clearing out the spring prints, and building up demand for summer lines. A good part of the industry has opened the new season, but there are still some important mills yet to display their warm weather fabrics. Cutters and piece goods buyers have spent an active ten days in attending openings and sampling the new lines. There is little disposition to buy summer goods, though a few mills have written moderate quantities of orders for printed chiffons. Retailers are showing unusual interest in the sheers, and some good buying by these factors is expected next month. The tendency among piece goods buyers to purchase lightly and frequently has resulted in more numerous trips to the New York market. Broadsilk sales executives comment that the retailers are visiting their showrooms much more frequently than usual.

Reorders on Spring Prints

Spring prints continue in good call, and there was a fair amount of reorder business placed this week. Several broadsilk houses cut output of these lines, fearing a price decline, and as a result are short of gray goods. There is some doubt as to when the spring print season will end; certain usually well-informed executives look for an early clearance accompanied by a very decisive break in prices, but up to the present, the price weakness appears to be confined to goods of inferior quality or unpopular colors. Spring prints which are fashion-right and of good quality can still sell at list prices, it is claimed. Curtailment of output of spring prints has been fairly general, and stocks are moderate, which would suggest that the price break may be less pronounced than expected.

Cutters Buy Low-price Shantungs

Shantungs sell actively to the cutters-up, but mostly at the low-price end. A few mills which specialize in high quality shantung prints are getting good prices; this, however, is the exception rather than the rule. Rough goods, as predicted in these columns some time ago, appears destined for a "price" season. Retailers are holding off on shantung purchases, but some activity at that end is looked for in March.



Out of Date
means Out of Line
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Ten years ago, fifteen years ago, full-fashioned machines were in competition only with machines of similar age and equal capacity. Today, this older equipment must try to keep pace with *modern* machines, which have the advantage from every angle . . . size, speed, quality of production, low maintenance costs.

The pace is faster now, the competition is keener, and profits are harder to earn. Mills operating obsolete machines are hopelessly outclassed in every market, even in the very lowest. *Modernization* is the order of the day, and now, while business conditions permit it, is the time to install machinery which shows immediate and lasting profit.

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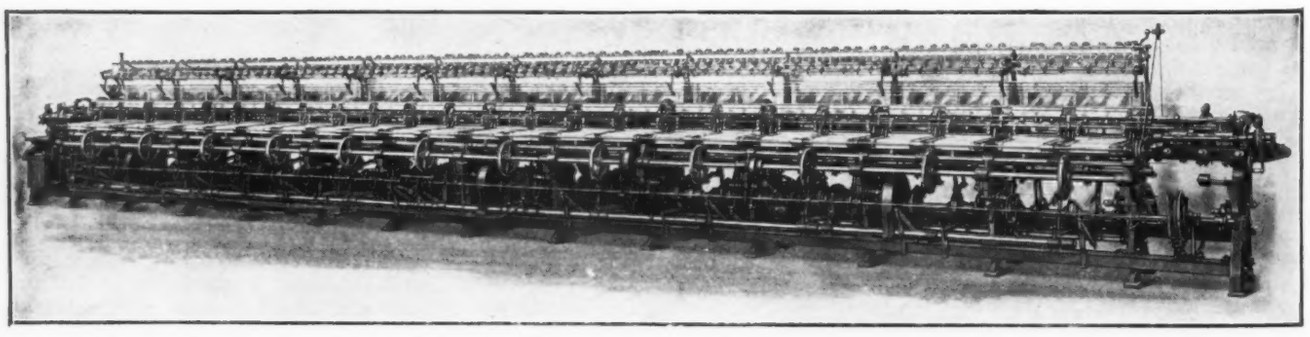


The Reading Full-Fashioned Knitting Machine as it stands today—after 32 years of development—is the lowest priced, highest producer ever offered.

KNIT GOODS MARKETS

TEXTILE WORLD ANALYST

◆Spring Underwear Is Active

THERE is little change in the underwear picture; demand continues to center on spring lines, and buyers are placing substantial business on all the lightweights. Store stocks are small and the approach of spring has stimulated coverage. All spring underwear buying is about ten weeks behind, and the market now is feeling pressure, due to this delay. Demand emphasizes men's cotton running pants, and rayon shirts and pants, and all buying is strictly spot. Prices have been pared down by a few firms, and the market as a whole is steady. The call for running pants is spirited; there is plenty of stock available, and distributors have no difficulty in getting prompt shipment. Balbriggan lines also are active, but all orders are small and for spot delivery; producers of balbriggan say the season's sales to date are below normal, but continued demand for some weeks would bring them up to last year. Balbriggan stocks in mills are moderate; prices are steady and market tone is good. Jobbers and retailers do little bargaining; if they really want goods, they pay list prices without debate. Market reports indicate there is less tendency to buy on price basis.

Fall underwear lines continue slow, but the keen interest manifest in spring goods has encouraged heavyweight producers to look for improvement in March. A few mills were getting heavyweight orders, mostly of the "feeler" type this week, but the market is quiet. Heavyweight production is being gradually increased. Producers are determined to go cautiously on this point; they are resigned to a late season, and are holding back on mill operations pending developments. Allowing for the backward season in all lines, the underwear market is making progress; manufacturers regard the outlook as encouraging. Jobbers and retailers talk optimistically of their own turnover, and are less hesitant about buying.

◆Polo Shirts Beginning to Move

SOME early demand for men's and boys' cotton polo shirts is manifest in the outerwear market; interest centers on blues, yellows and one brilliant orange garment. Orders are small, and no volume turnover is expected for a month or so, as the season is still in its infancy on these lines. Knitters are uncertain regarding prospects for polos this year; some are producing actively in the hope that 1931 will duplicate 1930, but the more conservative firms are going slow, pending reaction from distributors. The trade expects March to bring some definite indication of polo prospects. Women's rayon shirts move hesitantly; the call is chiefly for pastels.

Bathing-suit demand is firm, and orders accent the lively shades, such as scarlet, peacock and bright mixtures, in women's cotton suits; men's cottons sell best in navy and maroon. Some mills specializing on low-priced bathing-suits are sold up solid for several months, and the quality producers also are booked well ahead of output. Production is active, and volume deliveries are expected to begin in late April. Spring sweaters move steadily, pastels being preferred in women's lines; prices are firm and stocks are moderate. Fall sweater lines show some improvement, but the winterweight market as a whole is sluggish. It seems inevitable that fall sweater producers will have to wait until the latter part of spring, for any real start on coverage. Market men who urged postponement of openings now are taking the "I told you so" attitude, and sales would seem to support their earlier view.

◆General Hosiery Price Rise Doubtful

HOSIERY producers grow more optimistic as Easter approaches; not, indeed, that they are relying so much on Easter business; but that prospect, together with a generally firmer undertone, especially in women's full-fashioned, tends to improve the outlook. Jobbers and retailers placed moderate business in these lines during the past ten days, and price emphasis was less than it has been; all orders are small and for nearby delivery, but they aggregate a fair turnover. Full-fashioned demand leans to warm weather shades; gunmetal has fallen to second, and in some instances, third place among best-selling numbers. The "produce to order" campaign appears to be having an effect on stocks; there was less distress merchandise available this week, and knitters are encouraged by this trend, particularly in view of the Easter business which is expected to develop shortly.

It is not considered likely that the price increase announced by two full-fashioned mills last week, will precipitate a general rise in these lines immediately; the fact that the raw silk advance has halted, has discouraged knitters on that score, and some feel that the price rise was premature. However, the mills now selling above market report a good response, and there is no question but that the rise has had a firming effect on the market generally. New York agents are uncertain as to the significance of the Philadelphia strike; continuance of the strike would undoubtedly have a good effect in reducing Philadelphia output of full-fashioned which would benefit the industry as a whole, though of course at the expense of individual firms.

Current full-fashioned sales stress mesh and net effects, and there is promise of real volume at this end in March. At the half-hose division, demand is uneven; some mills are selling ahead on silk-and-rayon lines retailing at 50c. and these firms find difficulty in moving their low-priced numbers; other producers report a condition exactly opposite, with demand centering on half-hose retailing at 25c. Wraparounds are in good call, in assorted colors. Men's and boys' golf hose are active, for spot delivery, and there is much interest in a new golf hose number which has an elastic top.

◆

Hosiery Association Urges Norris Bill Protest

Members of the National Association of Hosiery & Underwear Manufacturers have been asked by that organization to write Senators and Congressmen urging the latter to vote against the Norris bill limiting the power of Federal Courts in issuing labor injunctions. It is important, according to John Nash McCullaugh, managing director of the association, that manufacturers opposed to the provisions of the Norris bill voice their opposition immediately.

The bill recognizes the right of workers to organize and to bargain collectively through representatives of their own choice. If it is passed no court will be able to take that right from organized labor, nor to interfere with organizing, striking, meeting and picketing unless violence is proved, the association stated; the bill outlaws the "yellow dog" contract under which workers agree not to join unions; injunctions would not be issued without hearing both sides.

So. Africa Buys $1,300,000 U. S. Silk Hosiery Yearly

Pennsylvania and other United States mills are supplying silk hosiery to South Africa to the extent of $1,300,000 worth per year, according to Commercial Attache Samuel H. Day who has just returned to the United States after a three-year tour of duty at Johannesburg, South Africa. Mr. Day was formerly district manager for the United States Department of Commerce at Philadelphia from which post he was sent out as Trade Commissioner to South Africa in 1927.

VIBRATION
will wreck a plane

Crystallization due to vibration has caused many an airplane to fall and many a machine to fail to operate at its designed efficiency. In the new Wildman Full-Fashioned Hosiery Machine, vibration has been greatly cut down, both by the design and by virtue of the extra heavy base.

Write for further information.

WILDMAN MFG. CO.
Full-Fashioned Division
NORRISTOWN, PA.

YARNS AND RAW MATERIALS

TEXTILE WORLD ANALYST

◆ Cotton Yarns Are Becoming Stronger

ALTHOUGH cotton yarns have not advanced as rapidly as the raw material, spinners are gradually obtaining higher prices. There has been a good volume of business placed within the last two weeks, but the bulk has been at prices ½ to 1c. under spinners' quotations. Soon as a spinner takes some business of this type, his prices are immediately advanced and it is no longer possible to buy further amounts from that mill at these figures.

An indication of the price position of the market is to be seen in 20s-2 warps. Spinners are asking up to 22c. for this count for delivery during the next few months. In contrast with this manufacturers assert that bulk of the sales closed so far have been at 20c. basis. It must be added, however, that at present it is almost impossible to locate further amounts at that price.

Cotton, the Stimulant

Yarn prices have advanced from 1 to 1½c. which is in proportion with changes in the raw material market. In other words, spinners have kept abreast of cotton advances so far as nominal quotations are concerned, but not when basis of actual sales is considered, the latter lagging 1 to 1½c. behind the cotton parity.

All spinners are endeavoring to advance prices as quickly as possible as yarns are selling on an attractive buying basis when spinners' margins are considered. Based upon prices of yarns and cotton at this time there is no "such animal." One of the leading spinners asserts that yarns are still selling on an 8c. cotton basis. If the claim is correct, yarns are selling at 3c. under the price which would leave the spinner only his normal profit. It may safely be assumed that yarns are selling considerably under a price which leaves a fair profit to the spinner. How long this condition will last is debatable, but indications are that the trend has already started toward its elimination.

Market Is More Active

More yarn is selling and manufacturers who have covered their needs for the next three months are endeavoring to cover for the following three months, believing that current prices will not be available three months hence.

To date the most marked improvement in sales has been in weaving yarns. Knitting counts, combed and carded, have improved in specifications but new business is lagging. In weaving, carpet manufacturers have been heavy buyers. Insulators have also been active buyers in recent weeks.

Reports from southern selling centers show that spinners are reluctant to accept business at the present price basis after April 1. Reports also indicate that it is possible to buy at sacrifice prices still, although these are gradually becoming harder to locate.

Gaston County combed spinners operated their mills last week at about 50% of normal capacity, which shows that demand for combed yarns has not taken part in the betterment to date. Mercerizers report larger specifications on old contracts, but new orders are small in volume making it unnecessary for them to place large combed contracts.

◆ Cotton at New High Meets Selling

THE advance in cotton was checked by increased offerings above the 12c. level for October and there were reactions under realizing in advance of the holiday, but prices firmed up again on the reopening of the market Tuesday and made new high ground for the movement with May advancing to 11.65 and October to 12.18. This advance has reflected a continuation of the trade demand which developed at the beginning of the month and which was started, apparently, by demand from the Far East. Bombay has again been reported a steady buyer in Liverpool, but the demand from Japanese interests has not reappeared in volume in the local market since October sold above the 12c. level and private cables from Japan received in the trade here said that the Japanese mills are not following the advance.

No doubt, a considerable part of the trade buying reported here during the progress of the recent advance has reflected the fixing of prices on cotton purchased earlier in the season and the lifting of hedges against diminishing stocks of goods and yarns.

It is possible, however, that improving conditions in the textile trade and the prospects for a settlement of political disputes in India which would open up an important outlet for both Japanese and Lancashire goods, have brought in some buying as a protection against forward needs. The advance appeared to be bringing out a little more spot cotton, but the basis was reported generally firm, and, according to some advices, cotton was no longer offering on a tenderable basis at the end of the week.

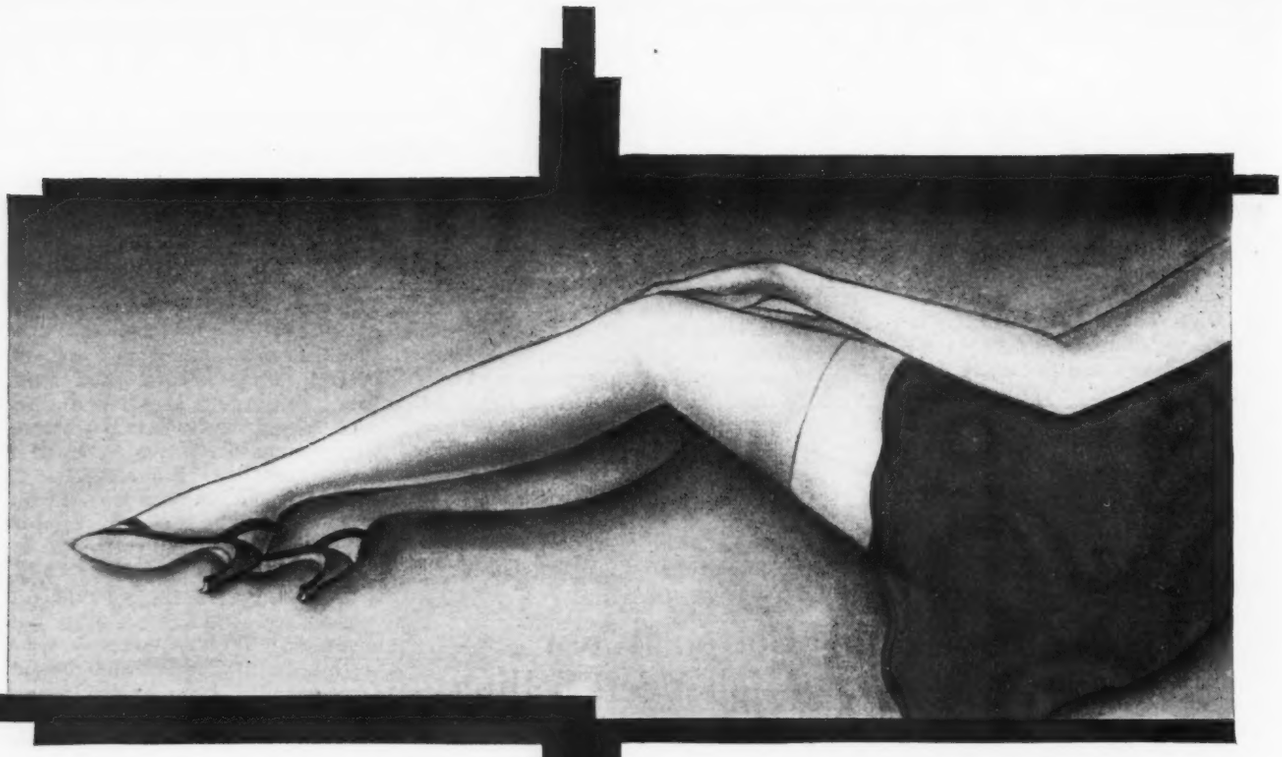
As anticipated, a considerable amount of cotton was tendered on the first March notice day. It amounted to about 118,000 bales and the circulation of the notices on Wednesday led to considerable March liquidation. It was readily taken by trade buying, partly against sales of later months at the prevailing differences, with the demand almost active enough to suggest some competition for the cotton. Houses supposedly operating for the cooperatives were credited with taking up part of the notices, while others went into the hands of leading spot house interests, with the differences between March and later months narrowing somewhat after the notices had been stopped. Some additional notices may be issued later in the month, but their effect will probably be shown by fluctuations in the March discount rather than by any particular change in the general trading level. The latter, of course, will be determined by the general technical position of the market and the further development of trade or crop prospects.

There can be little doubt that the trade and speculative short interest has been materially reduced on the advance of nearly 2c. a pound from the low records of last December. There are some who think that the advance has also afforded more incentive for planters, although others question whether late February advances have much influence on the acreage. Weather conditions have been favorable for farm work and the advance in the market has probably improved the position of farmers who may have been holding part of their last year's crop. According to advices received here from South Carolina, landlords have been offering their tenants more encouragement since the advance in prices, and there is a possibility that the improvement in the market will be followed by rather a more active demand for fertilizers than previously expected.

Meanwhile the increased demand for cotton goods is expected to find a reflection in something like more normal domestic mill consumption during the last half of the season, while many think that recent developments and foreign trade buying have foreshadowed some increase in export demand to take care of end-season requirements. At any rate the recent action of the market has encouraged the feeling that the turning point in the world's cotton goods markets has been passed and that trade is now developing an upward trend. This may not be of much importance from a statistical standpoint as nearly all estimates of the end-season carryover have allowed for increasing consumption for the last six months of the season, but it will have much to do with the market's reactions to early acreage and crop advices.

Memphis Stocks Dwindling

MEMPHIS, TENN., Feb. 23.—The total stock of cotton held here has been reduced rather heavily during the last two



THE new model "K" machine knits this stocking without a seam . . . smooth of foot and fitted Gussetoe . . . with flattering shapeliness in leg and ankle. And women who understand the charm of a lovely stocking with line unbroken by seam, choose it as the perfect accessory.

The "Gussetoe"... the smooth, fitted foot ... with no seam or ridge.

ESTABLISHED 1865

SCOTT & WILLIAMS

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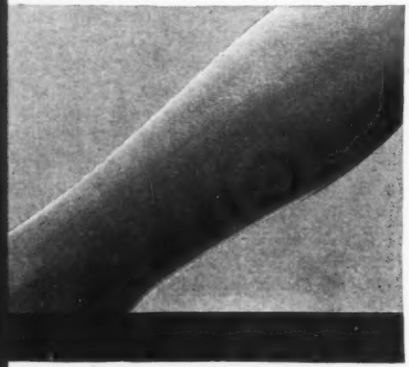

No seam to twist or mar the sheer.

YARNS AND RAW MATERIALS

TEXTILE WORLD ANALYST

weeks, owing to light receipts. The unsold stock is not large and when considered from the standpoint of wanted descriptions is limited. Sales during the week were good in comparison with weekly averages since the turn of the year, totaling 19,108 bales compared with 10,524 last year and 20,510 the year before, making 557,860 for the season against 906,236 last year and 684,949 the year before.

Increased Spot Sales

Spot sales, distinguished from f.o.b., totaled 6,560 bales, the largest in a long time and included some crop lots brought out by the price advance about the middle of the week. Basis is officially quoted unchanged. Factors say shippers readily paid full values for cotton bought against orders, but became "horse traders" if offered anything for which they did not hold an order. At the same time many shippers are saying it is dangerous, owing to the combed-over supply in first hands, to accept an order unless it is known where the cotton can be found. Last year almost any order could be filled on favorable terms—in many instances more favorable than at first hands—from buyer stocks. Such is not the case this year; buyer stocks are more firmly held than stocks in first hands; there is no selling pressure from any source.

Improved Demand for Staples

Demand for staples has improved, which seems to explain the larger sales; until recently most of the demand was for bright low grade $\frac{7}{8}$ to $1\frac{1}{32}$ in. cottons which were scarce. The staple association says wanted staples are scarce, that the stock consists almost entirely of medium grades and that users of high grades will find it necessary to substitute before the season is over. Farm work progressed satisfactorily during the week.

◆ Cotton Waste Prices Firm

THE better demand for cotton wastes noted last week continued during the early part of this week although the volume of business transacted was probably not so large. The most encouraging feature in the current situation is the fact that prices are well maintained.

Peeler comber is in good demand, 9c. being asked and obtained for choice lots; ordinary grades could be bought around $8\frac{3}{4}$c., but there is very little obtainable at this price. Thread stocks are firm and in fair demand. There is little activity in picker and fly, but prices are firmly held.

◆ Worsted Yarns Firmer But Dull

THE sales yarn market contrasts sharply with the wool goods market. The latter is active in spot and nearby delivery fabrics, while sales worsted yarns, both weaving and knitting, are generally dull. Although trading is no more active, yarn prices have at least stopped going down and there are firmer indications throughout the market. It seems that yarns are about to stand strong against further declines.

Wools throughout the world are firmer and while many in the trade doubt that higher figures will be paid in the near future, most feel that further declines are out of the question.

Stronger Price Basis

As spinners liquidate their old raw material holdings and are compelled to buy further quantities, they are likely to hold for present prices, at least more firmly than heretofore. This trend in itself has given the market a stronger tone in the absence of any real improvement in sales.

It is too late for spinners to be interested in the quick movement of spring dress goods lines in the Fourth Avenue section. There is not enough time left for spinners to make up yarns for this season, and when any spinner's stocks have been cleaned out, he is out of it.

The same applies to men's wear to a lesser degree. Unless the mixture spinner has the business on his books and is making weekly deliveries, there is not time to work up materials against new contracts.

Outerwear Demand Quiet

The outerwear section of the yarn market is the one that is most disappointing. There should be a good volume of business passing for spring wear, but it has been seen only in spots and most spinners are wondering what has become of the seasonal upturn. When spring goods are covered with yarns there will be a spurt in the knitting section that will resemble that now found in goods.

Bathing Suit Orders Slow

Bathing-suit manufacturers have yet to cover bulk of needs for their 1931 garments, and as time is growing shorter, most of this business, ordinarily placed and delivered over a six months period, will be crowded into three.

These mills claim they have not received orders from jobbers and retailers and therefore do not know what lines are going to sell this year. Will fancies take the place of standard type garments? That is the main question and until it is settled in manufacturers' minds there will be only unimportant spurts in the sales yarn market.

◆ Wool Sellers Meet Market

SUMMER STREET continues to sell wool, some lots at firm prices, others at concessions. Choice merinos are steady while the medium wools are irregular and show a slightly downward trend. Larger interest has developed in pulled B. wools. The price range is very wide depending on the character and color of the material. Some large sales are reported around 42c. and yet for average tinged wools some mills are bidding as low as 39c. Original bag line of the finer territory and half-blood graded wools are moving in fair quantity and the demand for the shorter French combing types continues steady. On combing wools prices are about where they were a week ago with the exception of low quarter combing and clothing wools which show a decline of 2c. per clean pound.

Willingness on the part of the trade to sell wool around current level will continue to operate to prevent any rise in prices. It is evidently the intention of all parties, whether co-operatives or independents, to reduce just as far as possible existing stocks, so that the taking over of the new clip be not hampered by frozen capital in the shape of unsold wool. The downward swing in prices has not been definitely checked and it is believed in some quarters that a percentage of the recent sales has occurred below the quoted market. Mill purchasing of wool for month to date has been quite extensive and manufacturers at times seemed quite urgent in their purchases asking for immediate shipment, all of which seems to confirm the belief of Summer Street that mill holdings have been greatly contracted by the restricted hand-to-mouth policy followed for months.

Movement of foreign wools out of bond continues relatively inactive. Quotations on Australians are coming over well below prices for presumably similar wools in bond, and the disparity in price, from 3 to 5c. per clean pound is probably due to the superior position of spot wools for manufacturing purposes. The Sydney market is strong and advancing. There is a more general demand and any early improvement in the Exchange situation is anticipated.

Wool growers have been complaining about the delay of National Wool Marketing Corp. in closing its 1930 accounts. Secretary-Treasurer Wilson of the corporation in reply states that they could have sold considerably more wool to

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date and made final returns on much of the 1930 volume, but it would have been at the sacrifice of the fundamental objective of the corporation to get full value for all wools. The date of final returns is secondary to results of this nature. Had wools been moved more speedily the market would have been driven down to ruinously low levels.

◆ Woolen Raw Materials Firm

THE outlook for a larger consumption for rags and reworks shows slow improvement and any day developments of importance may be seen in these commodities. It is very much of a sold-out market on good white stocks and the better class of fine to medium colored rags are not unlikely to meet larger mill interest. Mill demand, is however, insufficient to stabilize and consolidate the rag market into a workable unit, some graders willing to take 12c. for light hoods free of silk while others will not take less than 13c.

White knits hold very firm. Colored knit stocks are still quiet. Demand for this type of material from the upholstering section of the automobile trade has been cut into by a larger use of rayon waste which is in good supply on a very low level. Worsteds and serges continues inactive as well as low priced.

Some buying ahead of wools for woolen manufacture is considered in the nature of a signal that a similar mill interest will be seen in wastes in the near future. During the past four years average woolen spindle activity has been 98 based on an activity of 100 for the year 1926. Last year, of course, woolens did poorly but at the present time the downward trend in this branch of manufacture seems to have been checked.

Fine Noils Strengthen

Looking over the noil situation nothing particularly disturbing appears to be developing. On the contrary, the manufacturing situation from whence will come demand for noils is showing further improvement. It will be to the advantage of this market if woolens forge a little ahead of worsteds, bringing about a supply and demand situation favorable to the movement of old stocks at better prices. Nothing like this has yet developed but it is expected in some circles. In the meantime fine noils have recovered from their recent weakness and seem to be again headed upward, now quoted 45 to 47c. for choice lots. It is nevertheless, an irregular market, dealers doing a hand-to-mouth business finding it hard sledding to purchase noils at a price that will enable them to meet the low offers made by their consuming connections.

◆ Spun Silk Steady; Thrown Sluggish

MANUFACTURER interest in silk yarns tends, as usual, to favor the spinner. Spun yarn is less active than earlier in the month, but there is still a substantial quantity of business available. Several leading companies are sold to the end of March on single yarns and spinners as a whole are satisfied with the situation. New business has slackened, but this is a normal reflection of the advent of the summer broadsilk season. Weavers are averse to stocking up further on spun yarns, until they get real response to new lines. Spinners report plenty of inquiries, and they are told by the broadsilk firms that active fabric production for summer probably will start early in March. The spun silk mills look for a steady, though not spirited demand throughout the coming month.

Throwsters face a less encouraging situation. Thrown yarn movement is sluggish at all ends; there is no real disposition to buy, and prices are unsteady. The only firming influence on lists comes from the primary market. There is no general price-cutting, as price seems a minor factor in the market. Throwsters report that their outlets "are just not interested," and there is little response even when concessions are offered. The mills are in a good position as regards stocks and hope for an improvement in March.

◆ Raw Silk Market Quiet; Prices Firmer

DESPITE the recent frequent holiday interruptions, raw silk is holding its own, and the current week brought a slight firming of prices. Yokohama resisted pressure to bring quotations down, and this strength, together with psychological effect of a rallying on the New York Stock Exchange, helped to bolster the silk market. The March closing of the filatures also contributed an influence in this direction. Demand has not been active at any end; broadsilk mills are expected to do considerable reordering as March opens, but no rush of business is looked for. These weavers are nearing the end of their season, so far as raw silk commitments are concerned; they are strongly averse to future contracts, most of them remembering how badly they got caught about this time last year, when they bought on the hope of a rise. Importers look for the demand from these outlets to decline sharply about mid-March.

Buying leans strongly to 20/22s and, though orders are not plentiful, they are more than sufficient to move New York stocks; importers have difficulty in meeting the call for certain grades. The 13/15s, being mainly hosiery silk, move sluggishly, as stocking manufacturers are doing little buying; all hosiery output is moderate at present, and full-fashioned output is being drastically curtailed by leading mills. As a result, stocks of 13/15s in importers' hands in New York have augmented somewhat.

Outlook Less Encouraging

Raw silk outlook is less encouraging than four weeks ago. It seems almost certain that the end of current seasonal buying by weavers will bring a recession; the only point open to debate is the degree of that drop. Keen observers see April as fluctuating, with several sharp declines, but with levels holding well above the lows of 1930. Precise estimate is difficult due to the conflicting reports regarding actual stock conditions in Japan. It had been generally believed that, barring the warehoused surplus, stocks were very light, but now there is uncertainty on that score. One American representative of a Japanese firm said he had heard that there were substantial stocks being held in the interior. Such stocks, if they exist, would move more quickly in a price decline than in a price increase, as the Japanese rush to clear in the former event, and are inclined to hold their stocks when the market firms up.

Though the raw silk market is less optimistic, it is very sound at bottom; late spring recessions have been freely forecast for some time, and their effect has been generally anticipated. Steady prices, rather than advances, is the hope of the trade; indications are the importers will have their wish in that respect for the next two weeks, at least.

◆ Keen Rayon Demand May Cut Surplus

THE active buying which has featured the rayon market for some weeks continued into the closing week of February, and producers are much encouraged. Manufacturers are more confident and in some instances, they have placed substantial orders for end-March shipment. The quantity of business placed during the six weeks since the price cut has been better than was expected, and if it continues, it will cut well into the existing surplus. There is no general disposition to increase output; producers hold down on production, with the exception of certain fast-selling yarns in the 150 denier range.

While it is too early to speak with certainty, the market shows signs of settling; there is little or no price-

cutting reported, and producers are getting plenty of orders at quoted rates. The price cut put a new complexion on the underselling proposition as companies now have to pause and reflect before they offer concessions; several executives said this week that any appreciable cut below list would mean selling at a loss.

Demand comes in about equal proportions from the various divisions of the knit underwear trade, weavers, especially cotton mills, are covering actively. Manufacturers are not yet confident enough to cover ahead to any extent, but spot demand is proving satisfactory. The sales manager of a leading company said that February was "easily the biggest month in volume in more than a year."

Multifilaments are emphasized in orders for the 150s; there is also a steady call for the finer deniers, down to 75s. Rayon underwear knitters entered the spring season with practically no yarn on hand and were obliged to obtain stocks for immediate consumption. Sale of these finished garments is picking up slowly; the real rayon underwear season has not developed yet, but mills regard the outlook as promising, and they have enough business on their books to keep them active for some weeks. Producers of yarn look for steady buying from the underwear mills for another four weeks, with a possible let-down in April.

Rayon Waste Improves

Rayon waste demand has strengthened slightly, but prices continue uncertain. There has been a fair call for open waste, and some quantities of thread waste changed hands at 8c. Open waste wavers between 13 and 14c. Unbleached waste is quiet. Garnetters are making many inquiries. Waste dealers regard the outlook as more promising and hope for a fairly active March. Waste stocks are moderate; there is little open waste available.

◆ Moderate Firmness in Textile Shares

TEXTILE shares have not generally met the upturn seen on the country's stock exchanges, although a few specialties have jumped to higher levels. There is however a new attitude of firmness which suggests the passing of bottom, sacrifice prices.

Nonquitt Mills Loss

Nonquitt Mills, New Bedford, Mass., report for the year ended Dec. 31, 1930, operating loss of $128,323, inventory loss of $116,159, and a total loss of $244,482 which compares with total loss of $105,374 in 1929. A special meeting of stockholders has been called for April 15 at which time action will be taken to empower directors to carry on the business or to liquidate. In his report to stockholders, President Hendricks H. Whitman said that the outlook for the current year is not encouraging and that if the corporation decides to continue to operate the only reasonable hope is to keep losses at a minimum until business conditions change for the better. Nonquitt was changed over from a yarn to a cloth mill in January, 1930, when 250 looms were placed in operation.

Nashawena Mills Show Loss

Nashawena Mills, New Bedford, Mass., report for the year ended Dec. 31, 1930, loss of $278,502 after manufacturing expenses, inventory write-off, etc., but before depreciation. This compares with a profit after all charges but depreciation of $184,722 in 1929. No depreciation has been charged for several years because the company has ample reserve for depreciation. Working capital as of Dec. 31, 1930, totaled $1,036,004 as compared with $1,303,288 a year ago.

217th Consecutive Dividend

American Hosiery Co., New Britain, Conn., kept its record of dividend payments unblemished by declaring the regular quarterly dividend of 2% on Feb. 20. The company has never failed to pay dividends since 1873, five years after organization.

Financial Brevities

Phoenix Hosiery Co. reports for year ended Dec. 31, 1930, net loss after depreciation, inventory adjustments, interest, etc., of $360,434 including profit of $24,671 from purchase of first preferred capital stock. This compares with net income after federal taxes of $321,935 in 1929.

New Bedford (Mass.) Cordage Co. reports net profit of $12,162 after depreciation for 1930. Net working capital declined during the year from $714,896 on Dec. 31, 1929, to $632,766 at the end of 1930. Dividend disbursements in 1930 totaled $101,454. Regular quarterly dividend of $1.75 a share on the preferred stock was declared, payable March 2 to stock of record Feb. 18; a dividend of 25c. a share was declared on the common stock.

Sidney Blumenthal & Co. Inc., and subsidiary companies other than the Saltex Looms, Inc., and Caromount Mills report for the year ended Dec. 31, 1930 net loss of $290,581 after taxes and charges against net profit of $2,497,194 in 1929. Current assets on Dec. 31, 1930, were $5,563,061 and current liabilities $219,652.

Saltex Looms, Inc., for the year ended Dec. 31, 1930, reports net income of $26,333 after interest and other charges as compared with a net loss of $120,246 reported for nine months of 1929.

Pierce Mfg. Co., New Bedford, Mass., reports a loss of $283,048 for the year ended Dec. 31, 1930, the greater part of which was due to inventory write-offs. No depreciation was allowed inasmuch as the value of the plant already had been written off. Surplus of quick assets over quick liabilities showed a loss of $355,048 during the year and at the close of 1930 stood at $1,377,986. Directors declared a quarterly dividend of $1.50 per share payable March 1 to stock of records Feb. 23. The previous dividend was $2.00.

Durham (N. C.) Hosiery Mills reports for year ended Dec. 31, 1930, net loss of $12,556 after depreciation and reserves as compared with net income of $262,523 in 1929.

Century Ribbon Mills, New York, N. Y., and its subsidiary, Century Factors, Inc., report for the year ended Dec. 31, 1930, net loss of $172,835 after depreciation, etc., as compared with net loss of $27,269 in 1929.

A manufacturing loss of $18,000 was shown by the Neild Mfg. Co., New Bedford, Mass., in 1930. After allowing for dividends of $60,000, inventory write-offs of $50,000, and loss from curtailment of operations of $30,000, there was a shrinkage of $158,000 in profit and loss account. Surplus of quick assets over quick liabilities totaled $554,969 on Dec. 31, 1930, a decrease of $149,458 from a year ago.

Stockholders of the Flint Mills, Fall River, and Bristol Mfg. Co., New Bedford, Mass., both of which are now controlled by Jerome A. Newman and his associates, have received dividends in liquidation of $30 and $18 per share respectively. Par value of the Flint stock has been cut from $100 to $25 and capitalization from $1,300,000 to $325,000. Bristol's capitalization has been reduced from $1,000,000 to $250,000 with a corresponding reduction in par value of the stock to $25 per share.

Net profit of $1,025,816, before taxes, is reported by the Real Silk Hosiery Mills, Inc., and subsidiaries, for the year ending Dec. 31, 1930, compared with $2,026,456 in 1929, after all charges, including taxes. Earnings per share of common stock figured at $4.15 compared with $9.31 in 1929.

Report of Davenport Hosiery Mills, for year ended Dec. 31, 1930, shows net profit of $313,896 after depreciation, Federal taxes, etc., equivalent, after preferred dividends, to $3.27 a share on 75,000 no par shares of common stock. This compares with $444,633 or $5.01 a common share in 1929.

Mohawk Carpet Mills reports net loss of $599,779 in the year ended Dec. 31 after depreciation and charges except an inventory write-off of $824,269 charged to surplus. In the year ended Dec. 31, 1929, the company had net income of $1,812,140, or $3.02 a share.

Boston Stock Auctions

The following sales of textile shares were made at auction, Wednesday, Feb. 18:

Shrs.	Mill	Par	Price	Change
30	Pepperell	100	76½	—1½
159	Naumkeag	100	80–84	....
12	Dwight	25	2½	+ ¼
65	Associated Textile	....	35–36½	....
5	Royal Weaving	100	99	+4
10	Bates	100	59½	....
200	Wamsutta	100	6¼	—1¼
481	Total			

A summary of recent mill statements appears on page 65.

QUOTATIONS

at close of business, Feb. 25, 1931
Prices cover average qualities unless otherwise stated

Cotton Goods

	Feb. 25	Feb. 18	Feb. 26, 1930
PRINT CLOTHS			
27 -in., 64x60, 7.60	3¾–3¼c.	3¾c.	4¼–4½c.
38½-in., 64x60, 5.35	5¼c.	5¼c.	6½–6¾c.
39 -in., 68x72, 4.75	6¼–6½c.	6¼–6¼c.	7½–7¾c.
39 -in., 72x76, 4.25	6¾–7c.	6¾–7c.	8¼c.
39 -in., 80x80, 4.00	7¼–7¾c.	7¼–7¾c.	9c.
BROWN SHEETINGS			
36-in., 56x60, 4.00	5¾c.	5¾c.	7¾c.
36-in., 48x48, 3.00	6¼c.	6¼c.	9¼c.
37-in., 48x48, 4.00	5¼–5¼c.	5–5¼c.	7c.
PAJAMA CHECKS			
36½-in., 72x80, 4.70	6½–6¼c.	6c.	7½–7¾c.
36½-in., 64x60, 5.75	5½–5¼c.	5c.	6¾c.
MISCELLANEOUS			
Drills, 37-in., 3 yd	6¾c.	6¾c.	9¾c.
Denims, 2.20	12¼c.	11¼c.	15c.
Tickings, 8 oz	15 c.	15 c.	19¼c.
Standard prints	7¼c.	7¼c.	9¼c.
Eastern staple ginghams, 27-in	8 c.	8 c.	10 c.

Cotton Waste

Peeler comber	8½— 9½
Peeler strips	7½— 8
Sak. comber	8 — 8½
Choice willowed fly	3½— 4¼
Choice willowed picker	3 — 4
Sak. strips	10 —10½
Linters (mill run)	2½— 3¼
White spooler (single)	6¼— 7

Cotton Yarn

CARDED (Average Quality)

Double Carded 2c.—4c. higher according to quality

SINGLE SKEINS OR TUBES (Warp Twist)

4s to 8s	$0.18½	22s	$0.23
10s	– .19	24s	– .24
12s	– .19½	26s	– .25
16s	– .20½	30s	– .26
20s	.21 – .21½	40s ex. qual.	– .37

TWO-PLY SKEINS AND TUBES

8s-2	$0.18½	26s-2	$0.25
10s-2	– .19	30s-2	– .26½
12s-2	– .19½	36s-2	– .32
14s-2	– .20	40s-2	– .34
16s-2	– .20½	40s-hi.brk.	– .37
20s-2	21 – .21½	50s-2	– .41
24s-2	– .24	60s-2	– .51

SINGLE WARPS

10s	$0.19	24s	$0.24 .24½
12s	– .19½	26s	.25 – .25½
14s	– .20	30s	.26 – .27
16s	.20½ – .21	40s.ex.qual	.37 – .38
20s	.21½ – .22		

TWO-PLY WARPS

8s-2	$0.19	24s-2	.24½
10s-2	– .19½	26s-2	.25 – .25½
12s-2	– .20	30s-2	.26½– .27
14s-2	– .20½	40s-2 ordin.	– .35
16s-2	– .21	50s-2	– .42
20s-2	– .21½	60s-2	– .52

8s-3 and 4-ply skeins and tubes; tinged, 17-17½; white, 18½; waste, 16½

HOSIERY CONES (Frame Spun)

8s	$0.18½	22s	$0.21½– .22
10s	.18½– .19	24s	– .23
12s	19 – .19½	26s	– .23½
14s	19½– .20	30s tying	– .25½
16s	20 – .20½	30s reg	– .27
18s	20½– .21	30s ex.qual.	.29 – .30
20s	21 – .21½	40s	.34 – .35*

COMBED PEELER (Average Quality)

TWO-PLY—(Knitting Twist) Cones

20s-2	$0.34 – .35	60s-2	$0.54 – .55
30s-2	.38 – .39	70s-2	.64 – .65
36s-2	.40 – .41	80s-2	.74 – .76
40s-2	.42 – .43	90s-2	.90 – .93
50s-2	.47 – .48	100s-2	1.10 –1.15

WARPS, SKEINS AND CONES

TWO-PLY—(Warp Twist)

20s-2	$0.35	60s-2	$0.55
30s-2	– .40	70s-2	– .65
36s-2	– .41	80s-2	.75 – .77
40s-2	– .43	90s-2	.92 – .95
50s-2	– .48	100s-2	1.12 –1.17

SINGLES

12s	$0.27½– .28	30s	$0.37½– .38
14s	.28 – .28½	38s	.40 – .40½
16s	.28½– .29	40s	.41 – .41½
18s	.29 – .29½	50s	.47 – .47½
20s	.30 – .30½	60s	– .54
24s	.32½– .33	70s	– .63
28s	.36 – .36½	80s	– .73

MERCERIZED CONES—(Combed, Ungassed)

26s-2	50–$0.52	90s-2	–$1.29
30s-2	52 – .54	100s-2	–1.59
36s-2	55 – .57	120s-2	–1.99
40s-2	58 – .60	30s	– .63
45s-2	60 – .62	40s	– .68
50s-2	62 – .64	50s	– .75
60s-2	70 – .72	60s	– .83
70s-2	82 – .84	70s	– .95
80s-2	94 – .96	80s	–1.17

Cotton Prices and Statistics

FLUCTUATIONS OF FUTURES

	Closed Feb. 19	For Week—High	For Week—Low	Closed Feb. 25	Net Chge
March	11.10	11.25	10.86	11.19	+.09
April	11.24	11.30	11.06	11.30	+.06
May	11.39	11.52	11.15	11.41	+.02
June	11.51	11.53	11.33	11.53	+.02
July	11.64	11.70	11.40	11.65	+.01
August	11.79	11.80	11.53	11.80	+.01
September	11.84	11.84	11.64	11.83	—.01
October	11.94	12.04	11.66	11.93	—.01
November	12.03	12.03	11.83	12.03	.....
December	12.12	12.19	11.85	12.13	+.01
January	12.23	12.28	11.93	12.22	—.01
February	10.98	.....	.....	.....	.....

SPOT FLUCTUATIONS FOR WEEK

(Middling)

	New York	New Orleans	Liverpool
Friday, Feb. 20	11.00	10.69	6.04
Saturday, Feb. 21	11.05	10.69	5.99
Monday, Feb. 23	Holiday	Holiday	6.12
Tuesday, Feb. 24	11.35	10.97	6.11
Wednesday, Feb. 25	11.30	10.90	6.29

FOREIGN COTTONS

Egyptian Cotton

Alexandria Exchange, Feb. 24		Change
March Sak	18 73	+1.23
April uppers	13.43	+0.88

Mar.-Apr. Shipment c. i. f. Boston.
(Tariff not included)

Fully good fair Sak	22.00
Fully good fair to good Uppers	16.25

(By Anderson, Clayton & Co.)

Foreign cottons	F. O. B. New York, Cents
Peruvian Tanguis Strict Middling	22
Peruvian Pima No. 1	19
Peruvian Moderate Rough	15
Peruvian Full Rough	21
China Tientsin No. 1	10½
India Rough	7 to 10
India Smooth	7 to 10

(By Gerald G. Loeb, New York.)

BASIS MIDDLING

	Saturday, Feb. 21	Saturday, Feb. 14
10 markets average	10.33	10.23
Memphis	9.70	9.60

PREMIUM STAPLES

First Sales from Factors Tables at Memphis

Grade Strict Middling	Prices Nominal
1⅛-in	12.50—12.75c.
1 3/16-in	14.00—14.30c.
1¼-in	18.75—19.00c.

CURRENT SALES

	For Week	Prev. Week	Week Before
Memphis total	19,108	17,977	11,816
F.o.b. included in total	12,548	14,670	9,221
10 markets	82,024	62,420	57,360

MEMPHIS RECEIPTS, SHIPMENTS, ETC.

	For Week	Last Year	Year Before
Net receipts	5,464	17,336	12,663
Gross receipts	25,107	36,602	35,052
Total since Aug. 1. net	586,425	836,758	718,836
Shipments	34,130	39,561	35,597
Total since Aug. 1	913,812	1,299,759	1,261,494
Total stock	341,636	395,541	256,476
Decrease for week	9,023	2,959	545
Unsold stock in hands of Memphis factors	51,360	50,397	.....
Decrease for week	7,854	*40	.....

*Increase

AVERAGE PRICE MAR.-APR. SHIPMENT HARD WESTERN COTTON

F. o. b. New England

	Middling	St. Middling
1 1/16 in	13½–13¾c.	13¾–14 c.
1⅛ in	14 –14¼c.	14¼–14¾c.
1 3/16 in	16 –16¼c.	16¼–16¾c.
1¼ in	20 –22c.	21 –23c.

Basis on New York, May 11.47c.

SPOT FLUCTUATIONS AND STOCKS

Markets	Middling Feb. 18	Middling Feb. 25	Sales	Stocks This Week	Stocks Last Year
Galveston	11.00	11.05	3,086	630,026	371,269
New Orleans	10.93	10.90	11,652	797,552	474,480
Mobile	10.35	10.35	4,707	229,257	35,286
Savannah	10.75	10.76	2,379	347,488	62,554
Norfolk	11.00	11.00	1,614	94,411	65,219
New York	11.25	11.30	.....	229,701	100,259
Augusta	10.59	10.69	16,458	109,538	93,773
Memphis	9.90	10.00	1,734	335,542	397,627
St. Louis	9.80	10.00	15,834	16,418	13,981
Houston	11.00	11.00	.....	1,393,343	982,751
Dallas	10.40	10.60	15,671	17,853	12,972

Liverpool 6.29d.
Liverpool spots in Liverpool Feb. 23, 6.12d.

DIFFERENCES ON AND OFF MIDDLING

	Dallas	Memphis	Montgomery	Augusta	Average
WHITE GRADES					
M.F	.75†	1.00†	.85†	.75†	0.87†
S.G.M	.60†	.75†	.75†	.63†	.70†
G.M	.50†	.50†	.60†	.50†	.51†
S.M	.35†	.25†	.35†	.25†	.30†
S.L.M	.60*	.75*	.65*	.50*	.55*
L.M	1.35*	1.50*	1.50*	2.25*	1.32*
S.G.O.**	2.25*	1.75*	2.50*	3.50*	2.11*
G.O	3.25*	2.00*	3.50*	4.50*	2.77*
YELLOW TINGED					
G.M	0.50*	0.75*	0.50*	0.50*	0.58*
S.M	1.00*	1.25*	1.00*	1.00*	0.98*
M.**	1.75*	1.50*	1.50*	1.50*	1.50*
S.L.M	2.50*	1.75*	2.25*	2.25*	2.09*
L.M.**	3.50*	2.00*	3.00*	3.00*	2.77*
YELLOW STAINED					
G.M	1.50*	1.75*	1.50*	1.50*	1.50
S.M.**	2.25*	2.00*	2.50*	2.50*	2.10
M.**	3.00*	2.50*	3.50*	3.50*	2.83
BLUE STAINED					
G.M.**	1.75*	1.50*	1.75*	1.75*	1.53*
S.M.**	2.25*	1.75*	2.75*	2.75*	2.08*
M.**	3.00*	2.25*	3.75*	3.75*	2.80*

**Grades not deliverable on contract. †On Middling *Off Middling.

Wool

OHIO, PENNSYLVANIA AND WEST VIRGINIA (IN GREASE)

Fine delne	$0.29 –$0.30	¾ blood	$0.25 –$0.26
Fine clthg	.23 – .24	½ blood	.24 – .25
¼ blood	.28 – .29		

TEXAS AND CALIFORNIA (CLEAN BASIS)

Texas, 12 months	$0.61 –$0.63
California, Northern	.57 – .59

PULLED—EASTERN (CLEAN BASIS)

A.A.	$0.68 –$0.70	B-Super	$0.43 –$0.48
A-Super	.52 – .55	C-Super	.38 – .40

MONTANA, IDAHO AND WYOMING (CLEAN BASIS)

Staple fine	$0.63 –$0.65
Staple ½ bld.	.60 – .62
Fine and fine medium	.58 – .60
¾ blood	.51 – .53
½ blood	.45 – .48

MOHAIR—DOMESTIC

Best carding	$0.28 –$0.30
Best combing	.42 – .45

MOHAIR FOREIGN (IN BOND)

Turkey fair, average	$0.15 –$0.18
Cape firsts	.15 – .18

FOREIGN CLOTHING AND COMBING (CLEAN BASIS IN BOND)

Australia:	
70s	$0.50 –$0.52
64s	.40 – .42
58s-60s	.38 – .40
(IN GREASE)	
Montevideo:	
58s-60s	$0.18 –$0.19
56s	.17 – .18
50s	.16 – .17
Buenos Aires:	
4s, 40-44s	$0.13 –$0.14
5s, 36-40s	.11 – .12

FOREIGN CARPET (GREASE BASIS IN BOND)

Aleppo	$0.20 –$0.22
China: Combing No. 1	.11 – .12
China Filling Fleece	.10 – .11
Szechuen ass't	.11 – .12
Cordova	.11 – .12
Scotch black face	.13 – .14
East India: Kandahar	.18 – .19
Vican'r	.22 – .24
Joria	.21 – .22

Worsted Yarns

ENGLISH SYSTEM WEAVING

2-20s 36s	$0.75 –0.80
2-24s 40s	.85 – .87½
2-26s 44s	.87½ – .90
2-28s 46s	.95 – .97½
2-30s 48s	1.00 –1.02½
2-32s 50s	1.05 –1.10

(Single yarns 5c. less than above)

2-36s, 58s	$1.25 –1.27½
2-40s, 60s	1.30 –1.32½
2-40s, 64s	1.35 –1.37½
2-50s, 66s	1.50 –1.52½
2-60s, 70s	1.90 –1.95

ENGLISH SYSTEM KNITTING

2-20s, 44s in oil	$0.80 –0.82½
2-20s, 48s in oil	.85 – .87½
2-20s, 50s in oil	87½ – .90
2-20s, 56s in oil	.97½–1.00
2-20s, 60s in oil	1.17½–1.20
2-20s, 64s in oil	–1.27½
1-15s, 46s dyed	.95 – .97½
1-15s, 48s dyed	.97½–1.00
1-15s, 50s dyed	1.00 –1.02½

(Oil yarns 17½c. less)

FRENCH SYSTEM

1-20s, 58s	$1.10 –1.12½
1-20s, 60s	1.15 –1.17½
1-18s, 64s, dyed	1.35 –1.40
1-26s, 64s	1.20 –1.22½
1-30s, 60s, Warp	1.22½–1.25
1-30s, 64s, Warp	1.25 –1.27½
2-30s, 64s, Fancy mixes	1.55 –1.57½
2-40s, 64s, Zephyrs	1.40 –1.42½
1-50s, 66s	1.55 –1.57½
2-50s, 66s	1.62½–1.65
1-60s, 70s	1.90 –1.92½
2-60s, 70s	2.00 –2.05

FRENCH SPUN MERINO WHITE

1-30s, 50-50-58s on cops	$1.00 –1.02½
1-40s, 50-50-6?s on cops	1.15 –1.17½
1-40s, 50-50-64s on cops	1.17½–1.20
1-40s, 50-50-64s Australian cops	1.20 –1.25

Underwear mixes, 3c. additional.
Solid color, 35c. additional.

Tops and Noils

TOPS—BOSTON

Fine (64-66s)	$0.87 –0.90
Half-blood (60-62s)	.80 – .83
High ¾ blood (58s)	.77 – .80
Aver. ¾ blood (56s)	.73– .75
Low ¾ blood	.65– .70
High ½ blood (50s)	.58– .60
46s S. A. and N. Z.	.53– .55
44s S. A. and N. Z.	.50– .52
40s S. A. and N. Z.	.50– .52

TOPS—BRADFORD, ENG. (FEB. 20)

Fine (70s)	25½d	¾ bld. (56s)	15½d
Fine (64s)	22½d	½ bld. (50s)	12½d
¾ bld. (60s)	20½d	Cross-bred (46s)	10 d
¾ bld. low (58s)	17½d		

NOILS—BOSTON

Fine	$0.43–$0.45	High ½ bld.	$0.31–$0.33
Half-bld	.38– .42	Low noils	.31– .33
Aver. ¾ bld.	.33– .35	Medium colored	.25– .28
Fine colored	.32– .35		

Wool Substitutes

WOOL WASTE

Lap, fine white	$0.68 –$0.70
Lap, fine colored	.48 – .52
Hard ends, fine white	.51 – .53
Hard ends, ½ blood white	.33 – .35
Hard ends, fine colored	.25 – .27
Hard ends, medium colored	.18 – .20
Card, fine white	.25 – .28
Burr, fine Carbonizing	.30 – .33

OLD WOOLEN RAGS (GRADED FOR MFRS.)

Merinos, Coarse Light	$0.04½–$0.05½
Merinos, Fine Dark	.04 – .04½
Merinos, Fine Light	.11 – .12
Serges, Blue	.06 – .06½
Serges, Black	.06 – .06½
Serges, Red	.08 – .09
Knit, White	.25 – .26
Knit, red	.10½ – .11½
Knit, Light Hoods	.12 – .13
Worsted, Light	.05½– .06
Worsted, Blue	.06½– .07
Worsted, Black	.06½– .07

Silk Yarns

THROWN SILK (60 day basis)

	Nominal
Japan organzine, 2 thd. spec. gd. XX. sk. 85%.	$4.25
Japan organzine, 2 thd. sp. crack. sk. 81%	3.75
Japan crepe, 3 thd. gd. XX bob. 83%	4.00
Japan crepe, 3 thd. sp. crack. bob. 81%	3.85
Japan crepe, 4 thd. crack bobbins, 78%	3.55
Japan grenadine, 4 thd. sp. grand singles, 87%	6.00
Japan grenadine 4 thd. 85%	5.70
Japan grenadine 3 thd. 90%	7.00
Canton crepe, 3 and 4 thd. ns. 14/16 on bobbins	2.75
Hosiery tram, 3 thd. Japan 90%	5.05
Hosiery tram, 5 thd. Japan, 85%	4.10
Hosiery tram, crack XX 78%	3.25

SPUN SILK YARNS (Terms: net 30)

40/2	$3.15	60/2	$3.35
50/2	3.25	62/1	2.35

Raw Silk

(60 day basis)
Prices Nominal

	13/15 White	20/22 White	20/22 Yellow
Super Grand, 86/88%	$3.75	$2.90	$3.00
Special Grand, 85%	3.30	2.85	2.90
Grand XX, 83%	3.00	2.80	2.85
Special Crack, 81%	2.87½	2.75	2.80
Crack XX, 78%	2.80	2.65	2.70
Extra Extra, 73%	2.65	....	....
Best Extra, 68%	2 60	....	....

Canton filature, new style, 14/16	$1.80
Canton filature, new style, 20/22	1.60
Tussah filature, 8 cocoon	1.15

NATIONAL RAW SILK EXCHANGE

	Close Feb. 18	For the Week High	For the Week Low	Close Feb. 24	Net Chge.
February	2.49	2.61	2.49	....	....
March	2.49	2.60	2.49	2.56	+.07
April	2.50	2.60	2.49	2.60	+.10
May	2.50	2.55	2.46	2.54	+.04
June	2.47	2.53	2.45	2.53	+.06
July	2.45	2.52	2.42	2.52	+.07
August	2.42	2.49	2.40	2.49	+.07
September	2.43	2.49	2.43	2.49	+.06
October	....	2.49	2.46	2.49	....

Total contracts, 381. Total number of bales, 3,810
Total approximate value $10,668.

Domestic Rayon

VISCOSE PROCESS

Denier	Filament	First	Second
50	14	$2.15	$1.95
75	18–30	1.35	1.25
100	18–40	1.10	1.00
125	36–50	1.00	.90
150	30	.70	.67
150	40	.75	.72
150	60	.85	.82
150	75–90	.85	.82
170	24–27	.75	.72
170	60	.85	.82
200	30	.75	.72
200	35–42	.75	.72
300	42–62	.63	.60
450	54–60	.63	.60
600	72–96	.63	.60
900	100–144	.63	.60

NITRO-CELLULOSE PROCESS

Denier	First Qual.	Second Qual.	Denier	First Qual.	Second Qual.
75	$1.35	$1.25	150	$0.75	$0 72
100	1.05	.95	175	.75	.72
125	.95	.85			

CUPRAMMONIUM PROCESS

Denier	Filament	Price	Denier	Filament	Price
15	24	$3.10	65	45	$2.00
25	24	2.85	80	60	1.70
30	24	2.60	100	75	1.35
40	30	2.40	120	90	1.22
52	30	2.20	150	112	1.10
			180	135	.97

ACETATE PROCESS

Denier	Price	Denier	Price
45	$2.25 2.75	120	$1.90
55	2.05–2.55	140	1.30
65	2.45	150	1.40–1.85
75	1.80–2.70	200	1.55
100	1.65–2.45	300	1.50

Rayon Waste

Prices Nominal

Open bleached waste	–$0.13
Open unbleached waste	– .11
Bleached thread waste (mfs.)	– .09
Bleached thread waste (misc.)	.05– .07
Colored thread waste	...– .04
Colored clips	...– .04

CONVERTED RAYON WASTE

Bleached tops	$0.30
Unbleached tops	.27
Bleached noils	.10
Bleached garnetts	.13
Unbleached garnetts	.14
Colored garnetts	.12

Silk Waste

Kibizzo Kakai Grand XX	$0.54
Kibizzo Kakai Triple Extra	.48
Frison Grand Double	.52½
Pierced Cocoons	.53

R&H

HYDROGEN PEROXIDE

100 Volume Electrolytic

is always DEPENDABLE

BLEACHERS appreciate the importance of a uniformly unvarying, full-strength Hydrogen Peroxide. Much more than the idea of getting the "dollar's worth" is involved. It is more a matter of cost and operation control . . . . assurance that the bleaching process is proceeding along predetermined lines . . . . that the expected bleach will be given to the goods.

We know that R & H 100-Volume Electrolytic Hydrogen Peroxide meets every bleaching requirement. It is produced under carefully controlled conditions which can only give a UNIFORM, STABLE, HIGH QUALITY Hydrogen Peroxide.

Dependable as R & H Peroxide is, it gives the best results when used with the R & H System of Peroxide Bleaching in the Kier. Write for information concerning this unique system which furnishes the best in bleaching "and costs no more."

Our Bleaching Experiment Station is at your service, FREE.

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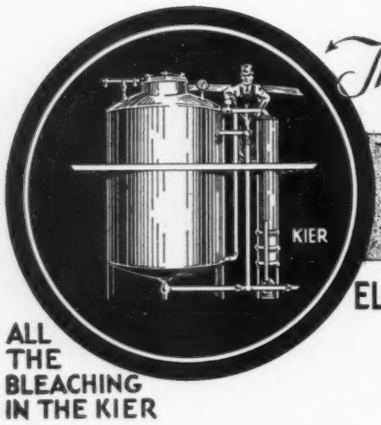
PEROXIDE PRODUCTS

Albone (25 Vol. Hydrogen Peroxide)
Albone C (100 Vol. Electrolytic) Hydrogen Peroxide
Solozone (Sodium Peroxide)
Sodium Perborate

The **ROESSLER & HASSLACHER CHEMICAL CO.**

Incorporated

10 East 40th St. New York, N. Y.



ALL THE BLEACHING IN THE KIER

The R&H KIER SYSTEM *of* PEROXIDE BLEACHING—

ELIMINATES MOST *of* THESE PROCESSES *"AND COSTS NO MORE"*

Strike in Lawrence Plants of American Woolen Co.

TROUBLE which had been brewing in the Wood, Washington and Ayer mills of the American Woolen Co. for the previous week, broke out into action over the Washington Birthday weekend, and a strike was voted for Feb. 24. The starting point is said to be the dissatisfaction of certain employes in the combing department with a new schedule which would assign nine combers to two operatives, rather than three combers to one operative. The National Textile Workers Union took advantage of the unrest to grasp leadership. A surprise strike was called in the Wood mill Saturday, Feb. 21, and the pot kept boiling by meetings and inflammatory literature.

L. J. Noah, recently elected president of the American Woolen Co., and Moses Pendleton, vice-president, arrived in Lawrence on Monday and conferred with various leaders of the city. Mr. Noah issued a statement deploring the effects of a strike at this time and, to show his willingness to go more than half way, said that the American Woolen Co. would open the plants under the following conditions:

1. Discontinuance of efficiency experts in all departments.
2. No discrimination.
3. All other conditions to continue as prior to Feb. 16.

The union replied by rejecting the offer and coming out with two new demands, namely, time and a half for overtime and recognition of the union. Since overtime has been rare in the mills and since the union has admittedly a small membership in the plants it was evidently the purpose of the union leaders to keep the excitement going. The strike for Feb. 24 was voted at a wild meeting on Feb. 23. Less than 2,000 of the 10,000 workers made their way into the mills on Tuesday morning and the mills were closed. There was rioting along the picket lines and several arrests were made.

Union leaders boldly announced that the strike would spread all over New England, but the response was not enthusiastic and attempts to extend the scene of combat to other mills in Lawrence failed. At time of going to press a secret vote was being taken on continuance of strike. Union leadership has been in large measure repudiated and the workers have broken up into factions. Observers doubt that the strike will last for long.

Whiteside Luncheon Guest

A. D. Whiteside, former president, the Wool Institute, Inc., was the guest of honor at the luncheon Feb. 18 at the Manhattan Club, New York, given by leaders in the wool piece goods trade. Franklin W. Hobbs, Arlington Mills, presented Mr. Whiteside with a painting entitled "Winter Scene, Switzerland," the work of Ivan F. Choultse, one time court painter to the late Czar of Russia.

Mr. Whiteside presented the Institute with a carved wooden panel which once served as the emblem for the wool weavers of Florence which was formerly part of a collection of antiques that was recently dispersed in New York. Col. Charles F. H. Johnson, president, the Botany Worsted Mills, presided and introduced Mr. Hobbs, president of the National Association of Wool Manufacturers. More than 60 attended.

Blackstone Valley Men Hold Meeting

Blackstone Valley Mills Association held its first quarterly meeting for 1930 in the Uxbridge (Mass.) Community House on Feb. 11, with an attendance of more than 100 members and guests. The new president, Donald W. Barnes, presided at a short business meeting, following a chicken pie supper served at 6.30 o'clock. Following this was an indoor sports program which included a bowling match between teams representing the south part of the valley and the north part. The southenders defeated the northenders by 18 pins. Charles E. W. Matthews, manager of the Davis & Brown Woolen Co., Uxbridge, had charge of the southenders and John F. O'Neill, Farnumsville, of northenders.

Allan Smith, Millbury, had charge of the volley ball games and President Barnes supervised the card games, for which suitable prizes were awarded. The association voted to admit second hands as members. The speakers were Joseph Babcock, Boston; Rev. A. G. Crib, Sutton, Mass.; Joseph Paradise and Edward Ryan, New York.

Commends Statement on "Annual" Cover

Editor, TEXTILE WORLD:

The writer wishes to take occasion to tell you that the statement you have made on the cover of your edition of Feb. 7, 1931, is very clean cut and to the point. It puts in a few words what we all are thinking.

We hope this message will have reached a large number of manufacturers and others of importance in the industry.

F. F. STAFFORD,
President and General Manager,
The Cleveland Worsted Mills Co.

Cotton Festival at Gastonia

A new campaign has been launched in Gastonia, N. C., to interest women in wearing cotton products, and as a preliminary, 10,000 letters were sent out this week to individuals and organizations, in regard to the plans. The campaign will include a grand cotton festival in Gastonia March 6-7.

The proposed festival has the approval of The Cotton Textile Institute and the Durene Association of America. Other sponsors are the Women's club, the chamber of commerce, and the merchants association of Gastonia.

A large building on Main Street has been secured to exhibit the products of North and South Carolina manufacturers, and every manufacturer of the two States is urged to send exhibits. The Woman's club will take care of the exhibits and return them when the display is over. A cotton fashion show is to be a part of the festival.

Stehli Reports Good Call For Sweet Pea Crepe

Active interest in and demand for, Sweet Pea, a pure dye Oriental flat crepe in pastel shades, is reported by the Stehli-Silks Corp. This number is available in a full range of 60 colors, all washable with any of the standard preparations.

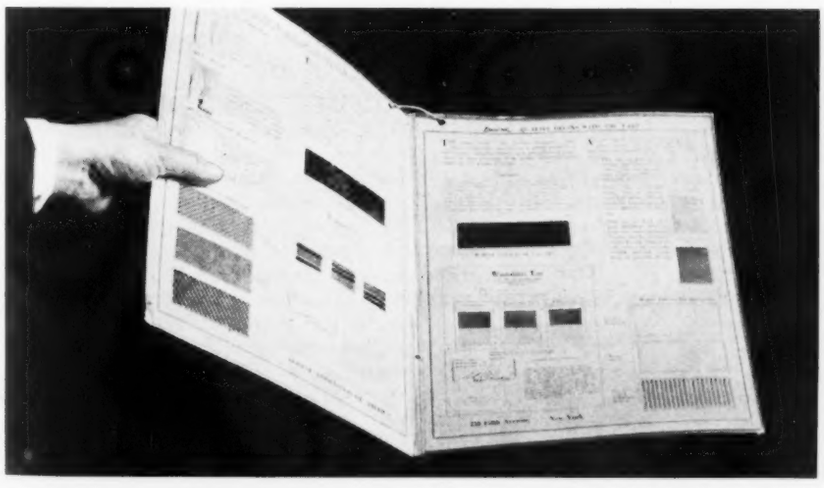


Chart issued to industry by Durene Association of America, showing cotton yarns before and after mercerization, and knit and woven fabrics for underwear, outerwear and draperies, made from Durene yarn. Chart is handsomely mounted on gilded boards.

Hunter Cotton Goods Sales Break Record

Hunter Mfg. & Commission Co., New York, in its weekly bulletin states that "very few people outside of Worth Street realize the enormous business that has been done in cotton goods during the last few weeks. Following a very heavy week in late January, it would hardly seem possible that we could now have a week much larger than anything before and in fact exceeding all previous records in our history."

The letter says that last week's sales totaled 48,767,000 yd. or over 800,000 pieces of goods. "Not only is this the best in our history, but it is 340% of actual production." Both gray and colored goods sales for the week were 320% of actual production, and of fine and fancy goods 182% of production. The company's sales for the seven weeks of the current year are the largest for any seven consecutive weeks in its history and are over 170% of production for the period.

Report 40% of Rayon Made From Cotton Linters

Raw materials used in the manufacture of rayon are the subject of a statistical survey conducted recently by the Bureau of the Census, Washington. This is the first survey of the kind ever held, and it is understood that statistics on this subject will be issued biennially hereafter. Preliminary figures show that during 1929, a total of about 157,800,000 lb. of cellulose raw material entered into rayon manufacture. Of this amount, the statistics show, 61,000,000 lb. consisted of cotton linters and approximately 97,000,000 lb. wood pulp.

Cotton linters account for approximately 40% of the total raw material used in rayon manufacture and wood pulp for 60%.

R. I. Section of Textile Chemists Meet on March 5

The American Association of Textile Chemists and Colorists, Rhode Island Section, will meet Thursday evening, March 5 at rooms of Providence (R. I.) Engineering Society. Dr. E. W. Peirce of Ciba Co., Inc., will speak on "Latest Developments in the Application of Fast Colors." There will also be a short talk on "Abnormal Fading of Mixed Shades" by William H. Cady of Slater Co. A. Newton Graves of Franklin Process Co., Providence, R. I., is secretary of the section.

Navy Opens Bids on Textiles

Bids for supplying the Navy Department, Washington, with blankets, dark blue cloth and other textiles were opened Feb. 24.

Bids received on proposal 5074, blankets, white, were: Carolina Cotton & Woolen Mills, $3.49; Chatham, $3.39; Homer, $4.295; Kent, $4.12; Marks, $4.49; Mill Associates, $4.40; Springfield, $3.548; Leakesville, informal.

Schedule 5075, item L A, 100,000 yd. dark blue cloth; Clinton, $2.07; Germania, $1.984; Kent, $2.08; Lacon, $1.96; Portland, $1.722; Worumbo, $2.125.

Item L B, 150,000 yd. dark blue cloth: Kent, $2.18; Lacon, $1.97; Portland, $1.721; Worumbo, $2.1483. Item L. C, 200,000 yd. dark blue cloth; Holden Leonard, $1.983; Lacon, $1.98; Portland, $1.719; Worumbo, $2.1725; American Woolen, $2.135.

Sheeting, 72 in., schedule 5117: Batavia Mills, 26.8c.; Cannon, 19.49c.; Clark, 26.65c.; Falkenburg, 26c.; Geldhart 22.7c.; Gimbel, 22.04c.; Marks, 23.8c.; Merit, 20.6c.; Miller Bain Bover 32.18c.; Minot Hooper, 24.25c.; Welbrooke, 23.5c.

Boston Wool Receipts

Receipts of domestic and foreign wools at Boston, also imports at Philadelphia and New York for the week ended Feb. 21, based upon data compiled by the Market News Service of the Bureau of Agricultural Economics, Department of Agriculture, follow:

	Week Ended Feb. 21	Total to Date 1931	Total to Date 1930
Domestic	4,986,000	9,920,000	11,921,000
Foreign	1,068,000	8,576,000	13,100,000
Total	6,054,000	18,496,000	25,021,000
IMPORTS AT PRINCIPAL PORTS			
Boston	1,068,000	8,576,000	13,100,000
Philadelphia	929,000	5,126,000	14,505,000
New York	1,511,000	6,679,000	8,995,000
Total	3,508,000	20,381,000	36,600,000

Bids On Cotton Cloth For Army Use

Bids were opened Feb. 24 by the Depot Quartermaster, U. S. Army, Philadelphia, to furnish it with 275,588 yd. khaki cotton union lining cloth. Terms permitted bidding on an equivalent of the 36½ in. yardage. Bids were: Batavia Mills, 40.78c; Geo. Woods, 42.45c; Parker Wilder on samples, 38.78c, and 36.94c; William Whitman, 43c; Kerr & Callagan, 41.945c; Suncook, 41.44c, and McCambell 32 in., 35.4c.

N. C. Cotton Manufacturers to Meet June 19 and 20

The Cotton Manufacturers Association of North Carolina will hold its twenty-fifth annual convention at Sedgefield Inn, near Greensboro, N. C., June 19-20, according to a recent announcement from Hunter Marshall, Jr., secretary and treasurer. The convention program will be published as soon as it is completed.

Gray Goods Firms Merge

It has been announced that the textile brokerage firms, Nickel, Barrett, Bossard & Quinn and V. H. & V. Woodhouse, Inc., will be merged under the name Woodhouse, Nickel, Barrett & Quinn. The firm will be located at 450 Seventh Ave., New York, the combination being effective March 2.

S.T.A. Schedules Meetings

Southern Textile Association's tentative schedule of meetings this spring, as announced by Walter C. Taylor, Charlotte, N. C., secretary, is as follows:

Weavers' Division, Manufacturers Club, Charlotte, N. C., Mar. 20, 1931.

Carders' Division, John C. Calhoun Hotel, Anderson, S. C., April 3, 1931.

Eastern Carolina Division, N. C. State College, Raleigh, N. C., April 17.

Master Mechanics' Division, Parker District High School, Greenville, S. C., May 8, 1931.

Annual Meeting (Place to be announced later), June 12-13, 1931.

Night Work Opponents Should Hoist True Colors

(Continued from page 27)

put people out of work. They cannot seriously contend that this is true for the industry as a whole or even in their own State. They know that production cannot go far beyond the demand without the industry being forced to curtail and curtailment means unemployment. The most they can mean if they are perfectly honest with themselves is that if they can keep on running full day and night they can give employment to their employes through the process of throwing an equal number of employes of other mills out of work. This boils itself down to the proposition that in order to keep their own mills busy they would rather perpetuate the night working of women and minors even though it does not diminish unemployment in the industry. Viewed in this light their position simply means that they desire to do all in their power to perpetuate night work for women and minors, although they do not admit it.

Those who do not support the movement for voluntary elimination of night work for women and minors should be willing to hoist their true colors and say they believe in and want to perpetuate night work for women and minors and should be willing to take all the personal responsibility that goes with such a position.

Corrections

Growing pains were evident in last week's issue of TEXTILE WORLD. Temporary conditions resulted in the following unfortunate errors:

Rob. Schaellibaum's article entitled "Effect of Reversing Direction of Flats on Cotton Cards" should have ended with the last complete paragraph on page 33. The remainder of this article, including the continuation on *page 59*, is properly a continuation of the description of Saco-Lowell's new toggle motion for slasher squeeze rolls begun on page 39. In the article entitled "Attractive Effects in Woolens and Worsteds Obtained by Transposing Weaves," the positions of Figs. 2 and 3 were reversed, the captions being in their proper places. An extra riser, the author's error in this instance, appeared in the tenth vertical row of Fig. 1.

A Survey of Business Leaders on Essentials to Overcome Depression

IN A REPORT of the opinions of over 2,000 leaders as to what should be done to bring back prosperity, C. H. Harrigan, president of the Merion Worsted Mills, West Conshohocken, Pa., states "that the anti-trust laws prevent any effective cooperation in the textile industry either through trade association or merger, the latter being impossible at present, anyway, because of the losses incurred in recent years and the consequent refusal of bankers to advance necessary funds to finance mergers."

Mr. Harrigan also contends that "One of our greatest evils is night work in Rhode Island mills, causing greater over-production in an industry far over-produced already." This, he believes, should be prohibited by Federal legislation to equalize all States; since it is his opinion that private initiative will not do it alone.

The survey report has just been made public in full by The Sherman Corp., business and management engineers, New York, after consultation with business executives, public officials, economists, editors and other representative citizens throughout the United States as to what should be done to end the business depression.

Lew Hahn, president and general manager of Hahn Department Stores, Inc., declares that "The thing of primary importance is the necessity for industry to be adjusting continuously its various activities to changing conditions."

Continuing his statement, Mr. Hahn says: "In the past there were two classes—the producing class and the consuming class. The growth of democracy throughout the world has changed this, and the great growth of productive capacity has induced a condition which calls for constantly increasing consumption.

"The more we can increase the time for leisure among those in the field of productive industry, the more time they will have to consume commodities of every sort."

The survey covered 2,304 business leaders and out of a list of 20 items which might prove essential to stimulating business, a majority (1,280) checked modification (or repeal) of Volstead Act. Five other leading items in order of importance are reduction of taxes, stimulation of public works, revision of merchandising plans, reduction of operating costs and development of new products.

Of the 2,304 men covered in the survey 188 were textile executives. Among these also modification of Volstead Act received the greatest number of checks (138). Other items in order, all of which were selected by more than a majority, follow: more liberal buying, lessening of competition through trade association practices, stimulation of public works, reduced operating costs, revised sales and merchandising plans, reduction of taxes, amendment of anti-trust laws and lower retail prices.

Cheney Summer Show Accents Velvets, Chiffons

Transparent velvets were given surprising emphasis in the summer fabric show, held by Cheney Brothers at their New York showrooms, Tuesday and Wednesday of last week. There was a wide range of jackets and long coats, and three important types of velvet: Lyons velvet, transparent and all-silk erect pile velvet; these were displayed in a wide range of colors, with black, white, coral and green the most important shades. Fabrics emphasized included printed shantung, crepe-de-Chine, printed fine grain crepe, heavy sheer crepe, printed flat crepe, and various chiffons. Summer chiffons leaned to large florals, but of very soft tones, with the design rather misty and subdued. Contrasts, such as black-and-white were accented throughout the showing.

National Work Clothes Week Planned

Plans to begin a concerted promotional effort to be known as National Work Clothes Week during the period of May 18 to 25, inclusive, were discussed recently at a meeting held at offices of the Association of Cotton Textile Merchants of New York. Officials of the International Association of Garment Manufacturers and representatives of the Association of Cotton Textile Merchants of New York were present. The movement will be definitely launched at the convention of the garment manufacturers' association scheduled for March 3, 4 and 5 in Chicago.

Phi Psi to Hold Convention on the Cape

The twenty-ninth annual convention of Phi Psi Textile Fraternity will be held May 8, 9 and 10 at the Bradford Arms Hotel, Sagamore, Mass., under the auspices of the Boston Alumni Chapter, which is sparing no effort or expense to make this the most worthwhile convention that this fraternity has ever held.

Umbrella Group Affiliates With Silk Association

At a second meeting of the Umbrella Supply Credit Group held recently at the Aldine Club, New York, it was voted to affiliate with the Silk Association of America. William Lustgarten, of Ecker & Lustgarten, silk manufacturers, chairman of the organization committee, stated that he had had a conference with A. A. Clune, field secretary of the Uptown Credit Group of the Textile Industry, a division of the Silk association, and outlined the advantages of an amalgamation with that organization. The houses represented at the meeting were Simon Ackerson, Inc., importers; H. M. Musser & Co., handles; S. W. Evans & Co., frames; Bentzer & Hauser, silks; E. J. Goldsmith Co., importer; M. Gitelson & Sons, cottons; Abe Harris, handles; American Cane Co., handles; and Ecker & Lustgarten, silks.

Outerwear Association Directors Meet

The mid-winter meeting of the board of directors of the National Knitted Outerwear Association was held recently at the New Yorker Hotel, New York City. The report of Bernard Steuer, for the machinery committee was a feature; Mr. Steuer proposed that the association recommend to all mills that they obtain a trade-in allowance on used machines when buying new equipment. It was believed that the adoption of the trade-in practice would stimulate the purchase of new machinery, to the advantage of the machine manufacturer; and also help the knitwear manufacturer by enabling him to produce more up-to-date merchandise at lower cost.

The directors expressed themselves in favor of Atlantic City, for the association's annual convention to be held in June; this choice is subject to approval of the Western and Cleveland districts, with final decision in the hands of the Executive Council. Other features of the meeting were: approval in principle of the Vestal Design Copyright bill; approval of the Legislation Committee's work toward securing better tariff protection for the domestic infants' wear industry; and approval of the preliminary steps taken to secure needed legislation prohibiting returns.

American Chemical Society to Meet in Indianapolis

The eighty-first meeting of the American Chemical Society will be held in Indianapolis, March 30 to April 3. Of the three symposiums which will feature the proceedings on Tuesday, March 31, the one expected to be of particular interest to textile chemists, on "The Physical and Colloid Chemistry of Cellulose and Cellulose Derivatives," will be given by the Division of Cellulose Chemistry and the Division of Colloid Chemistry.

Plan National Exposition of Mechanical Handling

What is expected to fill an important industrial need has been announced for the week of Nov. 30 to Dec. 5 inclusive in Grand Central Palace, New York. This is to be the first National Exposition of Mechanical Handling, an initial effort to feature exclusively this special type of equipment. This exposition will be conducted under the management of the International Exposition Co.

Georgia Executives to Discuss Carding and Spinning Problems

Carding and spinning subjects will be discussed at the spring meeting of the Textile Operating Executives of Georgia, which, as previously announced in these columns, will be held on Friday March 13 at the Georgia School of Technology, Atlanta. The meeting will consist of two sessions, and a Dutch luncheon. The morning session, to discuss carding, will open at 9:30 o'clock, and the luncheon will be held at one o'clock. The afternoon session will cover spinning subjects.

This being the semi-annual meeting, no election of officers will be held, but one member of the executive committee will be elected to succeed George S. Elliott, whose term of 2½ years expires with this meeting.

Frank K. Petrea, superintendent, Swift Mfg. Co., Columbus, is general chairman of the Association, and E. H. Rogers, agent, Fulton Bag and Cotton Mills, Atlanta, Ga., is vice-general chairman. The carding discussion at the morning session will be in charge of D. D. Towers, superintendent, Anchor Duck Mills, Rome, Ga.; and the spinning discussion at the afternoon meeting will be in charge of Albert Lehmann, Jr., superintendent, Dixie Cotton Mills, LaGrange.

Such pertinent subjects as single-process picking, straight wire and metallic card clothing, continuous card strippers, and V-belt drives will be covered in the carding discussion. Non-oiling saddles made of wood, calf-skin and cork roll covering, and other subjects of current interest will be discussed at the spinning session.

Bill Would Compel Mass. Mills To Install Pick Counters

Installation of pick counters on looms operated on two or three shifts in Massachusetts' mills is proposed in a bill presented to the State Legislature. Labor proponents of the measure claim that the advent, in recent years, of frequent style changes and a great variety of cloth constructions has given rise to continuous difficulties and dissatisfaction with the present method of figuring compensation for different fabrics and for different working shifts. Last year a similar bill was defeated in the legislature. Manufacturers opposed it on the ground that the cost of purchasing and installing the counters would be heavy.

A. A. Arnold Heads Sewing Silks Group

The Sewing Silks and Twists Division of the Silk Association of America, Inc. re-elected A. A. Arnold of Belding Heminway Co., chairman of the division, and J. T. Slattery of the Corticelli Silk Co., secretary, at the division's recent annual meeting held at Silk Association headquarters. Members of the executive committee appointed by Mr. Arnold for the coming year are F. W. Eaton, Corticelli Silk Co.; W. J. Kenney, Holland Mfg. Co.; H. M. Merriman, Belding Heminway Co.; A. A. Arnold, ex-officio. Members appointed to the pound goods colors and standardization committee were: A. A. Arnold, chairman; C. B. Gudebrod, Gudebrod Bros. Silk Co., Inc.; W. F. Kenney, N. Levinson, Corticelli Silk Co.; R. F. Stanton, A. H. Rice Co. The publicity committee for 1931 will be composed of J. S. Lipser, Corticelli Silk Co., as chairman; W. J. Kenney, C. B. Gudebrod and W. T. Rice, A. H. Rice Co. Members of the small goods color and cabinet committee are B. N. Knocke, chairman, Belding Heminway Co.; C. B. Gudebrod; J. T. Slattery, Corticelli Silk Co. and W. T. Rice.

New Wool And Waste Firm

Raymond H. Thorpe has opened offices at 100 Chestnut St., Philadelphia, where he is dealing in wools, noils and wastes. He will also represent David Leviton, worsted and woolen wastes.

Melrose Hosiery Mills Open New York Office

Melrose Hosiery Mills, High Point, N. C., have opened an office at 93 Worth St., New York City. W. A. Burton is in charge.

Business News

R. A. Nixon to Represent Oswald Lever in New England

R. A. Nixon has become connected with the Oswald Lever Co., Inc., Philadelphia, as New England representative. Mr. Nixon will handle the firm's line of winding machinery and textile supplies. He brings to his new connection 10 years' experience in the field.

G. C. Cooper Appointed Union Special Manager in Philadelphia

G. C. Cooper has been appointed manager of the Philadelphia office of the Union Special Machine Co. Mr. Cooper has served this company in numerous capacities. He had previously been connected with the P. T. Hallahan Shoe Co. of Philadelphia, and the A. S. Kreider Shoe Co., Annville, Pa. His new position is an advancement from assistant manager to which he was appointed in 1926.

U. S. Testing Co. Moves New Bedford Testing House to Providence and Opens Branch at Scranton

The United States Testing Co., Inc., will, on March 2 move its New Bedford (Mass.) Testing House to Providence, R. I., where it will be designated as the Providence Testing House. The more central location of Providence, with increased transportation facilities, expedites testing service to the silk, spun silk, cotton and wool interests, permitting a reduction in shipping cost and a saving in time, according to officials of the company.

The facilities of the new Testing House permit tests of yarns, fabrics, mill supplies and general laboratory service for all branches of textiles.

J. K. McWilliam, who has been the manager at the New Bedford Testing House since its inauguration eleven years ago, will continue in that capacity at Providence.

The opening of the Scranton Testing House on March 2 is announced by the United States Testing Co., Inc. This step reflects the growth of the Scranton vicinity as a center of thrown silk activity and follows the company's policy of expanding its testing facilities to meet the needs of the industry.

Arrangements may be made, it is stated, to have sampling done directly at the mill. Thrown silk will be sampled, sealed and sent direct to destination.

Walter I. Holt will be in charge. Mr. Holt was assistant manager for six years at New Bedford, three years at Chicago and for the last two years has been serving in that capacity at Hoboken.

Frank B. Williams, Jr., Elected Vice-President of Diehl

Frank B. Williams, Jr., sales manager of the Diehl Mfg. Co., Electrical Division of the Singer Mfg. Co., Elizabethport, N. J., was elected vice-president in charge of sales at the last board of directors' meeting of the Diehl company. Mr. Williams is a 1913 graduate of the course in electrical engineering at Drexel Institute and is widely known throughout the electrical, radio and machinery industries. He started his career on the test floor of the Diehl Company back in 1913 and his advancement was rapid. In 1918 he accepted the position of manager of power apparatus sales in the New York office of the Western Electric Co. In 1927 he returned to the Diehl Mfg. Co. as sales manager.

Oakite Announces Lower Prices

Oakite Products, Inc., New York, announces a reduction of prices as follows: "Effective Feb. 16, 1931, all present and prospective users of Oakite service and materials will be able to secure them at lower prices. Increased output, constant factory improvements in manufacturing and handling, advantageous purchasing and efficient management have resulted in a considerable saving in money which we are passing on in the tangible form of lower prices, to every concern using our service and materials, or to those whom we hope to include among the growing number of satisfied Oakite users."

Nelson E. Harris Re-elected Head of Rodney Hunt Machine Co.

Nelson E. Harris has been re-elected president of the Rodney Hunt Machine Co., Orange, Mass. Other officers and directors elected at the recent annual meeting were: Vice-president and treasurer, Carl C. Harris; secretary, Herbert M. Johnson, superintendent, William A. Baines; directors, N. E. Harris, C. C. Harris, H. M. Johnson, P. T. Harris, and E. S. Harris.

Robert Gair's Prices

Robert Gair Co. announces price on standard 85-test liner, effective Feb. 19, 1931, $35.00 to $37.50 per ton, adjusted for contract quantities, spot deliveries, $40.00, representing continuation of 1930 base price. Standard chip, news and manilla board prices remain unchanged.

New England Textile Stocks

Quotations at "Public Sale" are based on last sales at Boston Public Auctions and Boston Stock Exchange. Bid and Asked prices are latest quotations of dealers.

	Sale	Bid	Asked
Am. Mfg. Co.	52	47	53
Amoskeag	8¼	..	..
Arlington	16¾	18	20
Associated Textile	36¼	34	37
Bates	59½	59	..
Berkshire Associates, com.	7½	8¼	9
Berkshire Associates, pfd.	25	30	..
Bigelow-Sanford, com	27½	..	..
Boott Mills	120½	..	95
Edwards	80¼	58	62
Esmond, pfd.	98	95	98
Farr Alpaca	50½	48	52
Hamilton Woolen	40	34	36
Hill	9	8	11
Indian Orchard	20¾	15	..
Ludlow	117½	112	116
Merrimack com.	35	20	24
Nashua, com.	10½	5½	7½
Nashua, pfd.	66	29	33
Naumkeag	84	80	84
Newmarket	16½	12	..
Otis	43	30	33
Pacific	22½	..	..
Pepperell	76½	76	79
Plymouth Cordage	66	69	71
York	8¼	6	8

N. Carolina Mill Stocks

(R. S. Dickson & Co., Charlotte, N. C.)

	Bid	Asked
Acme Spinning Co	60	75
American Yarn & Processing Co.	50	62
Chadwick-Hoskins Co. (Par $25)	7	9½
Chadwick-Hoskins Co., 8%, pfd.	85	88
China Grove Cotton Mills	...	80
Climax Spinning Co	50	61
Clover Mills	...	20
Converse, D. E. Co	...	80
Crescent Spinning Co.	45	53
Dixon Mills	84	91
Durham Hosiery, 6%, pfd.	20	25
Eagle Yarn Mills	50	61
Efird Mfg. Co.	...	46
Erwin Cotton Mills	...	110
Erwin Cotton Mills Co., 6%, pfd.	80	93
Flint Mfg. Co.	...	70
Flint Mfg. Co., 7%, pfd	...	90
Globe Yarn Mills (N. C.)	...	15
Gray Mfg. Co.	...	65
Hanes, P. H. Knitting Co	7	10
Hanes, P.H. Knitting Co., 7%, pfd.	84	93
Henrietta Mills, 7%, pfd.	35	42
Imperial Yarn Mills	...	55
Linford Mills	54	66
Locke Cotton Mills Co	35	50
Majestic Mfg. Co.	98	115
Mansfield Mills	...	50
Mooresville Cotton Mills	...	5
Mooresville Cotton Mills, 7%, prior	...	68
Myers Mills	...	55
Myrtle Mills	...	48
National Yarn Mill	45	60
Perfection Spinning Co.	51	62
Ranlo Mfg. Co	...	101
Roanoke Mills	...	48
Rosemary Mfg. Co., pfd., 7½%	90	94
Rowan Cotton Mills Co.	52	65
Seminole Cotton Mills Co.	...	65
Sterling Spinning Co	50	62
Stowe Spinning Co	50	60
Victory Yarn Mills Co.	...	38
Ware Shoals Mfg. Co.	105	120
Ware Shoals Mfg. Co., 7%, pfd.	80	92
Winget Yarn Mills Co.	...	42
Wiscassett Mills Co.	145	155

Textile Calendar

International Association of Garment Manufacturers, 24th Annual Convention and 18th Annual Textile and Machinery Exposition, Hotel Stevens, Chicago, March 3 to 5, 1931.

Export Managers Club of New York, Annual Get-together Meeting, Hotel Pennsylvania, New York, March 3, 1931.

The Textile Forum, N.A.C.M., overseers of finishing, Boston (Mass.) Chamber of Commerce, March 10, 1931.

Textile Operating Executives of Georgia, Spring Meeting, Georgia School of Technology, Atlanta, Ga., March 13, 1931.

National Association of Waste Material Dealers, Eighteenth Annual Meeting, Congress Hotel, Chicago, March 16 to 18, 1931.

Southern Textile Association, Weavers' Division, Manufacturers Club, Charlotte, N. C., March 20, 1931. (Tentative)

Silk Association of America, annual meeting, Association offices, New York, March 25, 1931.

Wool Blanket Manufacturers Association, Quarterly Meeting, Hotel Pennsylvania, New York, March 27, 1931.

Southern Textile Association, Carders' Division, John C. Calhoun Hotel, Anderson, S. C., April 3, 1931. (Tentative)

Knitting Arts Exhibition, Commercial Museum, Philadelphia, April 13 to 17, 1931.

Southern Textile Association, Eastern Carolina Division, N. C. State College, Raleigh, N. C. April 17, 1931. (Tentative)

American Cotton Manufacturers Association, Thirty-fifth Annual Convention, Bon Air-Vanderbilt Hotel, Augusta, Ga., April 23 to 25, 1931.

Exposition of Chemical Industries, Grand Central Palace, New York, May 4 to 9, 1931.

Southern Textile Association, Master Mechanics' Division, Parker District High School, Greenville, S. C., May 8, 1931. (Tentative)

Phi Psi Textile Fraternity, 29th Annual Convention, Bradford Arms Hotel, Sagamore, Mass., May 8-10, 1931.

Southern Textile Association, Annual Meeting, (Place to be announced later) June 12-13, 1931.

National Knitted Outerwear Association, annual meeting, probably at Atlantic City, June 1931 (exact date to be set).

The Cotton Manufacturers Association of North Carolina, Twenty-fifth Annual Convention, Sedgefield Inn, Greensboro, N. C., June 19-20, 1931.

RECENT TEXTILE MILL STATEMENTS

Name and Address of Company	Line of Business	Fiscal Year	Assets						Total	Liabilities and Capital		
			Cash and Debts Receivable	Raw Materials, Mdse., Etc.	Total Quick Assets	Real Estate, Buildings and Machinery	Miscellaneous Amount	Miscellaneous Description		Accounts Payable, Floating and Funded Debt	Capital Stock	Surplus, Profit and Loss Reserves Etc.
Pacific Mills Lawrence, Mass.	Cotton & Wool	Dec. 31, 1930	$8,238,683	$8,861,691	$17,100,374	$48,458,057	$363,561	Miscellaneous	$65,921,992	$627,316	$39,612,300	$25,682,376
		Dec. 31, 1929	15,809,598	10,876,825	26,686,423	48,192,550	424,522	Miscellaneous	75,303,495	8,858,681	39,612,300	26,832,514
Harmony Mills, Cohoes, N. Y.	Cotton	Dec. 31, 1930	191,671	1,229,864	1,421,535	4,501,219	132,924	Miscellaneous	6,055,678	959,840	5,337,900	(1) 49,312
		Dec. 31, 1929	342,773	1,647,598	1,990,371	4,590,753	2,700	Securities	6,583,824	645,216	5,421,600	517,008
New Bedford Cotton Mills, New Bedford, Mass.	Cotton	Dec. 31, 1930	364,450	364,403	728,853	2,350,610	156,086	Profit and Loss	3,235,549	435,206	1,800,000	1,000,343
		Dec. 31, 1929	363,606	684,531	1,048,137	2,349,625	.....	.....	3,397,762	587,712	1,800,000	1,010,050
Booth Mfg. Co. New Bedford, Mass.	Cotton	Dec. 31, 1930	187,419	302,633	490,052	1,964,206	15,507	Miscellaneous	2,469,765	309,151	1,196,900	963,714
		Dec. 31, 1929	237,181	336,548	573,729	1,935,923	14,322	Miscellaneous	2,523,974	345,995	1,196,900	981,079
Soule Mills New Bedford, Mass.	Cotton	Dec. 29, 1930	499,644	225,089	724,733	2,096,321	.....	.....	2,821,054	34,417	1,260,000	1,526,637
		Dec. 29, 1929	470,841	309,584	780,425	2,096,745	.....	.....	2,877,170	59,544	1,260,000	1,557,626
Quissett Mills New Bedford, Mass.	Cotton	Dec. 31, 1930	1,046,344	709,549	1,755,893	2,273,482	.....	.....	4,029,375	19,833	2,000,000	2,009,542
		Dec. 31, 1929	1,272,088	678,496	1,950,584	2,273,132	.....	.....	4,223,716	15,108	2,000,000	2,208,608
Whitman Mills New Bedford, Mass.	Cotton	Dec. 31, 1930	78,189	84,416	162,605	4,352,210	92,591	Miscellaneous	4,607,406	1,266,473	1,421,125	1,919,808
		Dec. 31, 1929	282,536	1,306,631	1,589,167	4,370,173	43,932	Miscellaneous	6,003,272	1,496,050	2,280,748	2,226,474
Gosnold Mills New Bedford, Mass.	Cotton	Dec. 29, 1930	426,843	825,104	1,251,947	1,073,747	.....	.....	2,325,694	911,450	825,001	589,243
		Dec. 29, 1929	451,206	777,491	1,228,697	1,014,885	.....	.....	2,243,582	904,928	825,401	513,653
City Mfg. Co. New Bedford, Mass.	Cotton	Dec. 31, 1930	133,008	106,194	239,202	1,501,982	185,316	Miscellaneous	1,926,500	266	187,500	1,738,734
		Dec. 31, 1929	96,080	731,703	467,783	1,534,799	6,641	Miscellaneous	2,009,223	59,164	187,500	1,762,559

(1) Deduct deficit of $291,374.

NEWS about MEN

✦ ALEX LONG, Rock Hill, S. C., was elected chairman of the board of Aragon-Baldwin Cotton Mills, with plants at Chester, Whitmire and Rock Hill, S. C., at the annual stockholders and directors meeting held Feb. 17. R. E. HENRY, Greenville, S. C., was elected president; R. G. EMERY, of Greenville, vice-president; WILLIAM FRAZER, New York, N. Y., treasurer; E. O. HUNTER, of Chester, secretary; E. R. LUCAS, of Chester; J. G. BARNWELL, of Whitmire, and E. O. HULL, of Rock Hill, assistant treasurers. The new board of directors consists of the following: S. M. JONES, ROBERT GAGE and T. H. WHITE, all of Chester; ROBERT T. STEVENS, W. J. GALLON and DAVID JENNINGS, all of New York; NATHANIEL STEVENS, North Andover, Mass.; J. E. SIRRINE, R. E. HENRY and R. G. EMERY, all of Greenville; and ALEX LONG, of Rock Hill.

✦ WILFRED WARD was re-elected president of Providence (R. I.) Dyeing, Bleaching & Calendering Co., at the annual stockholders' meeting held last week. F. H. SWAN was elected treasurer; A. C. HOLDSWORTH was re-elected vice-president; J. H. PHILLIPS, secretary, and H. F. BILLINGS, assistant treasurer. The following directors were elected: J. P. ABBOTT, A. W. DIMICK, A. C. HOLDSWORTH, A. L. LUSTIG, G. W. RONNE, F. H. SWAN, and W. WARD.

✦ C. A. CANNON, president, Cannon Mills, Kannapolis, N. C.; L. W. CLARK, general manager, Carolina Cotton & Woolen Mills Co., Spray, N. C.; HAROLD MAHON, Judson Mills, Greenville, S. C., and ALEX LONG, president and treasurer, Arcade Cotton Mills, Rock Hill, S. C., have been elected members of the interstate committee governing the Y.M.C.A. activities in North and South Carolina.

✦ NELSON C. POE, for years vice-president of the F. W. Poe Mfg. Co., Greenville, S. C., was advanced to the presidency last week to fill the vacancy created by the death of his father, N. C. POE, SR. C. BRUCE HAGOOD, executive of the Glenwood mills of Easley, was elected vice-president.

✦ BIERNE GORDON was elected president of the Lafayette Cotton Mills, Utica, N. Y., at the annual meeting, and other officers chosen include H. D. Kernan, vice-president and treasurer, and George M. Weaver, secretary.

✦ W. S. BECKER, president of the National Automotive Fibres Co., Little Falls, N. Y., is among the newly elected directors of the Luxor Textile Mills, St. Johnsville, N. Y.

✦ W. A. WATTS, G. H. BLAKELY, and R. E. BABB, all of Laurens; R. G. EMERY, J. E. SIRRINE and R. E. HENRY, of Greenville; NATHANIEL STEVENS, Andover, Mass., and R. T. STEVENS, of New York, were elected directors of Watts Mills, Laurens, S. C., at the annual meeting Feb. 18. Following the stockholders meeting, the directors met and elected R. E. HENRY, president and treasurer; W. A. WATTS, vice-president and C. S. LINK, secretary and assistant treasurer.

✦ DR. HOMER GAGE, president, and all the other officers of the Crompton & Knowles Loom Works, Worcester, Mass., were re-elected for the ensuing year at the annual meeting of the corporation held on Feb. 18.

✦ LEO PROPPER was re-elected president of Propper-McCallum Hosiery Co., at the annual meeting of stockholders. SAMUEL KAHN was re-elected vice-president and BERNARD KAHN, secretary.

W. D. Anderson, president Bibb Mfg. Co. argued the affirmative side in a debate "Shall the South Go Industrial?" at Emory University, Atlanta, Ga., as reported in detail in these columns last week.

✦ H. S. RIVITZ, president of Industrial Rayon Corp., Cleveland, Ohio, addressed a dinner meeting at the O. Henry Hotel, Greensboro, N. C., last week, which was attended by a number of leading manufacturers and users of rayon.

✦ HERMAN S. MURRAY, director and vice-president of Oriental Silk Printing Co., Paterson, N. J., has been elected president of the company, to succeed H. A. VAN LIEW. Mr. Murray became associated with the company in 1914, and has successively held the offices of secretary, treasurer and vice-president, as well as being a director. Other officers elected include P. J. WOOD, vice-president, and W. F. WILES, secretary-treasurer.

✦ FRANCIS A. BRYANT was re-elected president of the New Bedford (Mass.) Cordage Co., at the annual meeting of the corporation and W. WALLACE TOTTEN elected vice-president. Directors elected were CHARLES S. KELLEY, PHILIP H. DIEHL, MR. BRYANT and MR. TOTTEN. MR. DIEHL was elected treasurer.

✦ CHARLES B. WETHERBY has been re-elected president of the George H. Gilbert Mfg. Co., Gilbertville, Mass. Other officers elected at the recent annual meeting were: vice-president and general superintendent, CHARLES A. WARD; treasurer, J. H. GRENVILLE GILBERT; assistant treasurer, LEONARD B. CAMPBELL.

✦ S. P. STOWE was re-elected president of Stowe Spinning Co., Belmont, N. C.; W. B. PUETT, vice-president; R. L. STOWE, treasurer; R. F. COX, secretary, at the annual meeting of stockholders, held Jan. 27. JOHN M. SCOTT, Charlotte, N. C., F. P. HALL and A. C. LINEBERGER, of Belmont, were elected additional directors.

✦ F. A. SHERRILL, W. T. NICHOLSON, D. J. CRAIG, ISADORE WALLACE, F. B. BUNCH, WILLIAM WALLACE and M. R. ADAMS have been re-elected directors of the Statesville (N. C.) Cotton Mills. Election of officers will be held at a later date.

✦ J. J. SCOTT, president of the Scottdale (Ga.) Cotton Mills, has been elected president of the Decatur (Ga.) chamber of commerce.

✦ JAMES E. STANTON, JR., JOHN B. STRONGMAN, WILLIAM O. DEVOLL, HENRY S. KNOWLES and GEORGE N. ALDEN were re-elected directors of the City Mfg. Co., New Bedford, Mass., at the annual meeting of stockholders. The vacancy created by the death of FREDERIC TABER was not filled. JOHN B. STRONGMAN was re-elected treasurer and clerk.

✦ E. L. MARTIN, vice-president of the H. & B. American Machine Co., Pawtucket, R. I., has been elected a director of the Booth Mfg. Co., New Bedford, Mass.

✦ J. L. BRAMAN, secretary of the Albany (N. Y.) Knitting Co., has been chosen a director of the Albany City Savings Bank, succeeding the late F. B. GRAVES.

✦ ANDREW G. PIERCE was re-elected treasurer and clerk of the Pierce Mfg. Co., New Bedford, Mass., at the annual meeting held last week. Directors re-elected were EDWARD T. PIERCE, ALBERT R. PIERCE, ANDREW G. PIERCE, EDWARD T. PIERCE, JR., FRANKLIN W. HOBBS, JR.

✦ JOSEPH H. ALLEN was re-elected treasurer and clerk of the Neild Mfg. Co., New Bedford, Mass., at the annual meeting of stockholders. Directors re-elected for the coming year were FRANK I. NEILD, CHARLES M. COLE, JOSEPH H. ALLEN, WALTER H. BASSETT, FRANK CROACHER, MAYHEW H. HITCH, JOHN G. NICHOLSON, FREDERIC H. TABER and FRANK S. WILCOX.

✦ WILLIAM L. DEWART, an efficiency engineer with the United States Finishing Co., Providence (R. I.) for the last 12 years, has been transferred to the company's plant at Hartsville, S. C.

✦ W. W. DUNKIN, who for the last four years has been manager of the Charlotte, N. C., office of Bradstreet's, has been named associate manager of the Southern Friction Fabric Co., Charlotte, N. C., manufacturer of asbestos brake lining.

✦ L. C. RAMSAY has been appointed supply manager of the Valley Falls (S. C.) plant of the Martel Mills.

✦ JOSEPH H. SEPARK, secretary and treasurer, Gray-Separk group of mills, Gastonia, N. C., has been elected to the board of directors of The Cotton-Textile Institute, Inc.

✦ R. T. MCWADE, plant official of Dunean Mills, has been elected president of the Greenville (S. C.) Textile Club, an organization made up of superintendents, general managers and overseers of textile plants of Greenville County. This is its seventh year of existence.

✦ DR. CHARLES L. REESE, director and consulting chemical engineer of E. I. du Pont de Nemours & Co., Wilmington, Del., has been elected chairman of the reorganized board of directors of the American Chemical Society, it is announced. Changes in the constitution authorizing an increase in the number of directors from ten to fourteen have been adopted by the society, which has 18,000 members and an annual budget of approximately $600,000.

✦ MISS GRACE WALTON, representative of the Durene Association of America, spent Thursday and Friday of last week in Gastonia, N. C., assisting with preliminary preparations for the association's participation in the coming cotton festival, which is to be held March 6 and which is attracting nation-wide attention in the "wear cotton" drive.

✦ GEORGE P. NEWELL, agent, and WALTER E. DAVIS, superintendent of Livingston Worsted Co., Washington, R. I., who have been in the service of the company for 25 years, were given a testimonial dinner recently at the Narragansett Hotel, Providence, R. I.

✦ J. R. DOVER, JR., who has held the position of superintendent of the Ora Cotton Mills and the Dover Mill Co., has been named general superintendent of the Dover and Eastside Mfg. Co., Shelby.

✦ ROBERT H. GADDY, son of C. W. GADDY, of the knitting department of the Wiscassett Mills Co., Albemarle, N. C., who has been superintendent of the Magnet Knitting Co.'s full-fashioned hosiery department, Clinton, Tenn., for the last two years, has been promoted to plant superintendent.

✦ C. G. WHITE has been appointed superintendent of the Ora Mill Co., Shelby, N. C., succeeding J. R. DOVER, JR., former superintendent of both the Ora Mill Co.'s and the Dover Mills Co.'s plants there, who has been appointed general superintendent of the Dover Mills Co. and the Eastside Mfg. Co., of Shelby.

✦ HAROLD STURTEVANT, until recently connected with the Bellman Brook Bleachery Co., Fairview, N. J., as assistant superintendent, has accepted a position in an executive capacity with Apponaug (R. I.) Co.

✦ L. B. NOLAN is now overseer of the cloth room of the Dover Mills, Shelby, N. C. He was promoted to this position.

✦ JAMES MOFFETT has resigned his position as overseer of weaving at the Palmer mill of the Otis Co., Three Rivers, Mass.

✦ JOHN THOMPSON, an overseer for the Roubaix Mills, Inc., Clinton, Mass., is a candidate for selectman of the town on the Democratic ticket at the annual town meeting on March 2.

✦ D. R. JACKSON is now night overseer of spinning at the Ella Division of the Consolidated Textile Corp., Shelby, N. C.

✦ D. WELSH, who was formerly superintendent of the Riverside Waste Mills, Augusta, Ga., is now associated with the Columbus (Ga.) Mfg. Co.

✦ L. A. BRANUM, formerly overseer dyeing, Stonecutter Mills Co., Spindale, N. C., has accepted a similar position with the Ladlassie plant of Gossett Mills, Anderson, S. C.

✦ LEE BAKER is now overseer of night carding at the Flint Mfg. Co., Gastonia, N. C.

Obituary

Nelson Carter Poe, Sr.

Nelson Carter Poe, Sr., president, F. W. Poe Mfg. Co., Greenville, S. C., died at his home in that city Feb. 17 following a brief illness which developed into pneumonia. Born and raised in Montgomery, Alabama, Mr. Poe was 79 years of age. Coming to Greenville about 50 years ago, he entered the hardware business and later turned to cotton manufacturing. He was a director in the Glenwood Cotton Mills, Easley, S. C., and the First National Bank of Greenville. He was a member of the First Presbyterian Church and was one of Greenville's most influential citizens. Mr. Poe is survived by a brother, H. T. Poe, and three children, Miss Ellen Poe, Nelson C. Poe, Jr., and William Watkins Poe, all of Greenville.

Fred A. Lapham

Fred A. Lapham, a retired Millbury, Mass., woolen manufacturer, died suddenly at his home in Oakham, Mass., on Feb. 19, of heart disease, after an hour's illness. He was a son of Mowry A. Lapham, who established the business under the name of the Lapham Mills (now operated by the Mayo Woolen Mills Co.) many years ago and after the death of his father continued it until his retirement. He was 74 years old, a native of Millville. He had been prominent in masonry, being a 32d degree member of the fraternity.

Winfield B. Knowlton

Winfield B. Knowlton, supervising engineer of the American Woolen Co. for the last 11 years, died suddenly at his home in Andover, Mass., on Feb. 17. Mr. Knowlton was born in Lowell, May 18, 1877. He was graduated from the Lowell Textile Institute. About 20 years ago he became associated with the Washington Mills, Lawrence. In 1918 he was appointed construction engineer of the American Woolen Co. In 1920 he was named supervising engineer. Mr. Knowlton was well known in club and fraternal circles. He was a Mason, and affiliated with the Mt. Sinai Royal Arch Chapter, Aleppo Temple, Mystic Shrine. He was an active member of the American Society of Mechanical Engineers. He is survived by his widow, one daughter, a son and a sister.

Emil A. Chappuis

Emil A. Chappuis, superintendent of the several mills of Berizzi Bros. Co., Inc., New York, died at St. Joseph's Hospital in Paterson, N. J., on Feb. 17, after a brief illness. Mr. Chappuis was identified with the silk business for many years, and was formerly associated with A. P. Villa & Bros. He is survived by his widow and two daughters.

Charles H. Kavanaugh

Charles H. Kavanaugh, formerly president of the Kavanaugh Knitting Co., Waterford, N. Y., died at his winter home in Florida following a brief illness. He succeeded his father the late Luke Kavanaugh as head of the knitting concern in 1885, but retired from business several years ago.

Rolfe W. Smith

Rolfe W. Smith, president of the Putnam (Conn.) Woolen Co., and a director of the Fitchburg (Mass.) Duck Mills, died suddenly of heart disease at his home in Leominster, Mass., on Feb. 12, after a short illness. He was a native of Leominster, 52 years old. He leaves a widow, three daughters and a son.

Thomas Baron

Thomas Baron, aged 54, owner of the Baron Woolen Mills at Brigham City, Utah, died recently, following a long period of declining health. Mr. Baron's father established the woolen mills at Hyrum, Utah, then his home. In 1894 Thomas Baron took over the plant, and 1915 moved the mills to Brigham City.

John Barker

John Barker, for 44 years an overseer in the Pacific Mills, Lawrence, Mass., died Feb. 18 in his 93rd year. He was a native of England. He served as a choir leader in Lawrence for more than 50 years. He started work in a spinning mill in England at the age of eight. He retired in 1923.

Mrs. Dora Davenport Hutchison

Mrs. Dora Davenport Hutchison, wife of C. E. Hutchison, president and treasurer American Yarn & Processing Co., Mount Holly, N. C., died at her home Feb. 18 following a sudden heart attack.

Harvey L. Fox

Harvey L. Fox, aged 46, general supervisor of the two units of the Falls Mfg. Co., Granite Falls, N. C., died suddenly while at his desk on Feb. 17. His death was attributed to heart disease.

George H. Rogers

George H. Rogers, sales manager of the Charles Cooper Co., Inc., Bennington, Vt., died on Feb. 11.

NEWS about MILLS

Cotton

Pepperell Mfg. Co., Lindale, Ga., is reported to have purchased an equipment which will enable the plant to shrink its products and at the present time the company is shrinking a small amount of its goods.

John E. Millett Co., Inc., Gardner, Mass., has been incorporated to manufacture cord, braid and woven webbing with a capital stock of $100,000 and will start business shortly. It has leased the former plant of the Kuniholm Mfg. Co., in that city for two years with option to purchase. The president and treasurer of the company is John E. Millett, for more than ten years general superintendent of the American Fibre Corp., who states that the company will specialize in the manufacture of fibre braid. Other incorporators and directors of the company are Bernice L. Millett, clerk and George C. Sweeney, mayor of Gardner.

American Gauze & Cotton Co., Cape Girardeau, Mo. Negotiations are said to have been completed by the Battle Creek (Mich.) Surgical Supply Corp., for the purchase of this company and plant. The new owner contemplates an early expansion program to double the present capacity. It will be operated in the future as a subsidiary of the purchasing company.

Harmony Mills, Cohoes, N. Y., have started 900 looms, which officials state they have hopes of operating indefinitely. About 100 operatives have been given employment.

Osage Mfg. Co., Bessemer City, N. C., recently constructed a modern office building, which affords larger and more convenient quarters.

Pomona Mills, Inc., Greensboro, N. C., are reported to have installed a Rodney Hunt shrinking machine.

Lowell (N. C.) Cotton Mills No. 1, 2 and 3 and **Peerless Mfg. Co.,** which have been operated in the hands of a creditors' committee for some time, have been taken over by W. L. Balthis, cotton broken of Gastonia, N. C. John Durham, of Charlotte, is president of the Lowell Mills and John M. Scott, Charlotte banker, is president of the Peerless Mills. Both companies are among the combed yarn mills, Lowell operating 23,500 spindles and Peerless 15,000.

Edna Cotton Mills, Reidsville, N. C., have been sold by the **Martel Mills Co.,** New York, to a concern that plans to resume full operation of the plant within a few weeks. The identity of the new interests or the consideration involved was not announced. The mill suspended operations last August, throwing about 200 operatives out of work. The new owners are understood to have acquired the entire mill village and property and plan to completely overhaul the plant.

Pawtucket, R. I. Fred Haley of Warren, former superintendent of Warren Narrow Fabrics Co., is preparing to manufacture narrow fabrics in Pawtucket, occupying 50,000 sq.ft. of space in the old Goff Mill, formerly occupied by the **Phillips-Jones Corp.** Mr. Haley is taking over the machinery of the Phillips-Jones Corp. and is obtaining additional equipment.

Darlington (S. C.) Mfg. Co. has purchased oil spraying equipment, and will install the Breton Minerol Process, furnished by the Borne Scrymser Co.

Chester, S. C. Formation of a $1,000,000 cotton mill corporation here has been announced with filing of a statement of the merging of the **Eureka** and **Springstein Mills,** with the secretary of state, at Columbia. Col. Leroy Springs is president of the new corporation and H. S. Adams is secretary. Directors of the $1,000,000 corporation are Col. Springs, Elliott White Springs, his son, and H. S. Adams, A. H. Robins and H. R. Rice. The same board of directors served separately for each of the mills before they were combined.

Bemis (Tenn.) Cotton Mills have started installing large opening and cleaning equipment and ten single process pickers. Equipment was purchased from the H. & B. American Machine Co., Pawtucket, R. I.

Riverside & Dan River Cotton Mills, Inc., Danville, Va., plan replacement of a 5,000 hp. steam turbo-generating unit in power station, recently damaged through internal trouble in the machine.

***Canadian Webbing Co., Ltd.,** Kingston (Ont., Can.) the Canadian subsidiary of **Everlastik, Inc.,** of Chelsea, Mass., which is establishing a plant at Kingston, will be known in future as the **Dominion Webbing Co., Ltd.** This change was made necessary owing to another company by the same name in Canada.

Wool

Perryville Woolen Mills, Inc., Dudley, Mass., are to be sold at auction on March 12, for the second time within a year. Luman H. Tiffany, Webster, Mass., holder of a mortgage on the property has foreclosed and will endeavor to dispose of it. Mr. Tiffany bought the property at a tax sale in November. The offering includes two tracts of land and buildings, water privileges and machinery. The plant has been operated by former employes since the Josiah Perry estate disposed of it a few years ago.

Lebanon (N. H.) Mills of the **American Woolen Co.,** which have been closed for many months, opened last week to take care of a large yarn order which will keep the mill active for an indefinite period. Starting this week the plant is operating night and day.

Empire Worsted Mills, Jamestown, N. Y., are adding considerable new machinery that will materially increase the efficiency of the plant. Twenty-four new looms have recently been received at the mills and will be set up.

Asheville (N. C.) Weavers, Inc., have been granted a charter to manufacture and sell homespun fabrics of all kinds. The concern is capitalized at 350 shares, 250 being the preferred stock, with par value of $100, and 100 shares of common stock, bearing no par value. The following are the incorporators: Alvin S. Kartus, Parham Kelly and Richard Bowman.

Kingston (Ont., Can.). Hield Bros., Ltd., worsted manufacturers of Keighley, England, have almost completed negotiations to locate in the cotton mill property here, owned by **Dominion Textile Co., Ltd.,** of Montreal. The agreement suggested by Hield Bros., is that the city purchase the property, equipment and building for $75,000, Hield Bros., to pay 5% on the purchase price with the option of purchasing the building and equipment from the city at the price the city pays for it, at any time during five years. The property contains 100,000 sq.ft. of floor space and consists of a four-story main building, and a one-story weave shed.

Knit

Wilshire Knitting Mills, 1505 East Colorado St., Pasadena, Calif., have filed notice of company organization to operate a knitting mill. Arsen Asadourian, 2020 Brigden Blvd., Pasadena, heads the company.

***Corinth (Miss.) Hosiery Mill, Inc.,** which is completing its plant at a cost of $1,000,000, is expected to be in operation in a few days. It will manufacture full-fashioned hose. Three machines have been installed and the general plan is to increase the mill's capacity by the addition of one machine monthly until maximum production is reached.

Adirondack Knit Goods Co., Ballston Spa., N. Y., has filed notice of company dissolution under state laws.

Diana Knitting Co., Johnstown, N. Y., has enlarged its force by taking on many of the former employes of the defunct **Bailey Knitting Mills.**

Shelby, N. C. A group of High Point, N. C., manufacturers, headed by E. E. White and Dr. Jackson, has been conferring with local business men for construction of a hosiery plant and definite announcement is expected soon. The city will appropriate to this new indus-

**Indicates previous mention of project.*

try $150 per month for three years provided that the plant's pay roll will total at least $1,500 weekly.

Jay-Bee Knitting Mills, Broad & Spring Garden Sts., Philadelphia, Pa., have leased space in the five-story building of the **Model Mills, Inc.,** Ontario and I Sts., totaling 16,000 sq.ft. floor space, and will occupy for a new plant.

Novelty Knitting Mills, Philadelphia, Pa. A portion of space in buildings Nos. 10 and 13 of this company, totaling about 13,000 sq.ft. of floor area, has been leased to the Union Canvas Co., for occupancy.

Pioneer Knitting & Mfg. Co., Philadelphia, Pa. An involuntary petition in bankruptcy has been filed against this company by a number of creditors.

Crescent Hosiery Mill, Niota, Tenn., has voted an increase in wages of 8% to its employes.

Danville (Va.) Knitting Mills are reinstating a number of employes, formerly released through curtailment in operations, and are advancing production.

Dobson-Miller Corp., Pulaski, Va., is maintaining production of a 100% capacity schedule with full working force, and will hold to that basis for an indefinite period.

British Knitwear, Ltd., Simcoe (Ont., Can.) has completed the removal of its machinery from its old plant to its new mill on Stanley St. The interior of the building has been thoroughly overhauled and made to conform with the most advanced standards of mill construction.

Silk

Carl Stohn, Inc., Boston, Mass., is now occupying a new addition, recently completed, and will use for expansion in finishing department. Machinery has been installed.

Canova & Simone Silk Co., Inc., Paterson, N. J., has asked bids on general contract for a one-story addition to main mill, 49x100 ft., and one-story adjoining structure, 20x21 ft., at Cedar and Dover Sts., Lockwood, Greene Engineers, Inc., 100 East Forty-second St., New York, is architect and engineer.

Jupiter Textile Co., Watervliet, N. Y., is enlarging its force for the manufacture of silk fabrics in the former plant of the **Federal Spun Silk Corp.**

***Champlain Silk Mills,** Whitehall, N. Y., has settled rumors of reorganization plans by announcing this week that it was determined to proceed with liquidation plans and disposal of its property.

Rayon

Acme Rayon Corp., Cleveland, Ohio, has suspended operations temporarily only, while alterations and improvements are under way. C. P. Green, president and general manager, denied reports that the plant had been permanently shut down. The new power plant has been completed and the mill will shortly change over from the old power plant to the new one, and further extensive changes are to be made during the shutdown. The company makes 150 and 300 denier yarns.

Du Pont Rayon Co's. Old Hickory (Tenn.) plant will increase production shortly, it is announced by the company. Machinery that has been out of use will be put into operation and it was indicated that a number of additional operatives will be employed, preference being given to employes who had previously been laid off.

Finishing

Hopkinson Dyeing & Textile Works, Inc., Fall River, Mass., have been organized with a capital of 700 shares of stock, no par value, to take over and operate company of same name, with local mill on Forest St. George William Hopkinson, heretofore superintendent at the plant, has been elected president; Norman B. Hopkinson is treasurer.

Cretona Print & Dye Works, Clifton, N. J., has purchased the adjoining mill of the Napon Rayon Corp., on tract of 8 acres of land, from Henry M. Parmelee, receiver for the last noted organization, and sale has been confirmed by the Court of Chancery. A consideration of $115,000 was given for the property. The purchasing company will use the property for expansion. The acquisition does not include machinery in the plant, which will be sold at once by public auction.

Seyer Silk Dyeing & Finishing Co. is the name of the firm formed at Paterson, N. J., by Joseph Seyer, of Haledon, who with R. B. Bates, of Paterson, purchased the **Uhlig Works** of the **Associated Dyeing & Printing Corp.** last month. Alterations are progressing rapidly and it is expected that operations will begin on March 10. Additional machinery and equipment is being installed, and when operations get under way the plant will have a capacity of 700 pieces daily. The company will specialize in pure dyeing of silk piece goods, rayons and silk mixed fabrics, especially featuring washable silks. Present plans of the firm are to add a silk printing division early in the fall.

Newport Silk Dyeing & Finishing Co., Inc., Paterson, N. J., a newly formed company, has purchased the **Fiory Division** of the defunct **Fabrics Finishing Corp.** from the bondholders' committee, which recently bought in all the Fabrics plants at a receiver's sale, and has established offices at 777 River St.. The Fiory plant, is now being remodeled by the new owners. Extensive alterations are being made, and additional machinery and equipment is being installed for the purpose of doing pure dyeing as well as weighting.

Hart Dyeing Co., Newark, N. J. Fire recently destroyed a portion of this mill on Raymond Blvd., with loss reported over $100,000, with equipment. It is planned to rebuild.

John Rauschenberger Co., Milwaukee, Wis., has asked bids on general contract for a new two-story addition to mill, 73x332 ft., on Hadley St., reported to cost over $100,000, with equipment.

**Indicates previous mention of project.*

Textile Patents

ANTIBALLOONING arrangement for cap and ring spinning, doubling, twisting, and like machines. 1,790,336. James Whitehead, Otley, England.

AUTOMATICALLY - threading loom shuttle. 1,785,218. Carl D. Drown, Hopedale, Mass. Assigned to Draper Corp., Hopedale, Mass.

AUTOMATICALLY - threading loom shuttle. 1,785,219. Carl D. Brown, Hopedale, Mass. Assigned to Draper Corp., Hopedale, Mass.

AUTOMATICALLY - threading loom shuttle. 1,785,220. Carl D. Brown, Hopedale, Mass. Assigned to Draper Corp., Hopedale, Mass.

AUTOMATICALLY - threading loom shuttle. 1,785,221. Carl D. Brown, Hopedale, Mass. Asigned to Draper Corp., Hopedale, Mass.

AUTOMATICALLY - threading loom shuttle. 1,785,222. Carl D. Brown, Hopedale, Mass. Assigned to Draper Corp.

AUTOMATICALLY - threading loom shuttle. 1,785,223. Clare H. Draper, Hopedale, Mass. Assigned to Draper Corp.

AUTOMATICALLY - threading loom shuttle. 1,785,224. Verner Lindsjo, Hopedale, Mass. Assigned to Draper Corp.

AUTOMATICALLY - threading loom shuttle. 1,785,225. Harry A. Davis, Hopedale, Mass. Assigned to Draper Corp.

AUTOMATICALLY - threading loom shuttle. 1,785,226. Horace E. White and George M. F. Depfer, Baltimore, Md. Assigned to Draper Corp., Hopedale, Mass.

CLOTH measuring device. 1,790,103. Albert S. LaFollette, Kenova, W. Va.

KNIT FABRIC transferring implement. 1,790,350. John W. Laux, Philadelphia, Pa.

KNITTING machine. 1,790,632. Ralph I. Weidner, Lansdale, Pa. Assigned to Dexdale Hosiery Mills, Lansdale, Pa.

LOOMS, Battery feed for, mechanism. 1,790,017. Jonas Northrup, Hopedale, Mass. Assigned to Standard Looms, Spartansburg, N. C.

LOOMS, Filling-feeler mechanism for. 1,790,018. Jonas Northrup, Hopedale, Mass. Assigned to Standard Looms, Inc., Spartansburg, N. C.

LOOMS, Letoff mechanism for. 1,790,016. Jonas Northrup, Hopedale, Mass. Assigned to Standard Looms, Inc., Milford, Mass.

LOOMS, Weft feeler mechanism for weaving. 1,790,214. Dennis M. Hollins, Blackburn, England. Assigned to Draper Corp., Hopedale, Mass.

MECHANISM, Cloth roll windup. 1,790,160. Verner Lindsjo, Hopedale, Mass. Assigned to Draper Corp., Hopedale, Mass.

SEWING machine attachment. 1,790,351. Albert Little, Boston, Mass.

SEWING machines, Feeding mechanism for. 1,790,386. Friedrich Lutz, Stuttgart, Germany.

TEXTILE materials, Apparatus for treating. Wilhelm B. Bronander, Montclair, N. J.

THREAD knotting device. 1,790,401. Ulrich Bischoff, Aarau, Switzerland.

UNWINDING reel for cloth winding machine. 1,790,020. Charles G. Richardson, Springfield, Vt. Assigned to Parks & Woolson Machine Co., Springfield, Mass.

WARPING apparatus. 1,790,318. Burt A. Peterson, Rockford, Ill. Assigned to Barber Colman Co., Rockford, Ill.

WARPING apparatus. 1,790,553. Burt A. Peterson, Rockford, Ill. Assigned to Barber Colman Co., Rockford, Ill.

METHOD of producing knitted hose, stockings and the like. 1,791,235. Joseph Coury, Paris, France.

SEWING machine. 1,791,220. Chas. W. Mueller, St. Louis, Mo. Assigned to Lewis Invisible Stitch Machine Co., St. Louis.

SEWING machines, Stop motion device for. 1,791,322. Walter Meyers, Bridgeport, Conn. Assigned to Singer Machine Co., Elizabeth, N. J.

SPINDLE. 1,790,835. John J. Pichette, Whitinsville, Mass.

SPINNING of artificial silk and the like. 1,790,979. William Porter Dreaper, Hampstead Heath, London, England.

STOP-motion. 1,791,289. Walter J. Scott, Woonsocket, R. I.

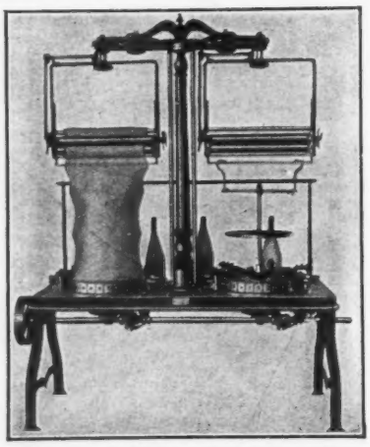
TEXTILE manufacture by sewing. 1,790,983. Benjamin Marshall, Glover, Leeds, England.

TUBULAR textile fabrics, Method and apparatus for handling. 1,790,655. Samuel Cohn, New York.

UNDERGARMENT and method of making the same. 1,790,645. John G. Andrews, Hamilton, O. Assigned to Panelton Underwear Co., Hamilton, O.

. . . because you can sell more goods if your machines are

CRANE



Spring Needle Underwear Machine with Automatic Take-up

This machine is made in sizes from 10 in. to 36 in. in diameter for the production of a great variety of fabrics of any desired gauge, the number of feeds depending on the size of the cylinders. Aside from the feeds for plain fabrics, the stockinet, eiderdown and astrachan feeds are superior to any on the market.

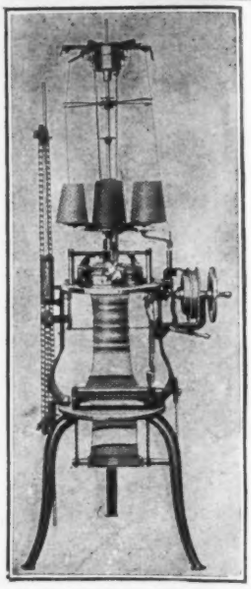
Fast, modern Crane Knitting Machines cut production costs—give your fabric prices the edge on competition—improve the quality—*and thus help sell more goods.* That's the reason you find Crane machines in prosperous mills, where every advantage is taken of modern design and modern production. A Crane representative can tell you what these machines are doing in many important mills throughout the country. Write, and a Crane man will gladly call.

Some Exclusive Crane Features

Patent removable hardened Wing Burr Wheels. Patent Thread Stop Motion can be fitted to 20-in. and 32-in. frames and are specially adapted for making fine Jersey Cloth and Stockinet. Our flat machine is adapted for knitting collarettes.

CRANE MFG. CO.

Lakeport, N. H.



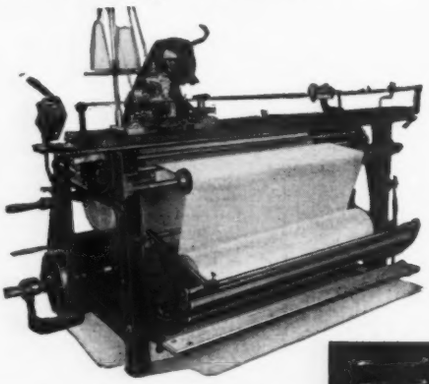
Improved Automatic 3-Colored Plain Striper

Made in sizes from 7⅝ in. to 20⅝ in. inclusive, of any desired gauge; these measurements being back to back of cylinder needles. The fabrics from this machine are used for bathing suits, theatricals, and athletic goods. These machines are second to none on the market. The Crawford stop-motion is applied when requested.

CRANE *Spring and Latch* **NEEDLE KNITTING MACHINERY**

NEW *Dinsmore*

Opening, Sewing and Re-rolling Machine

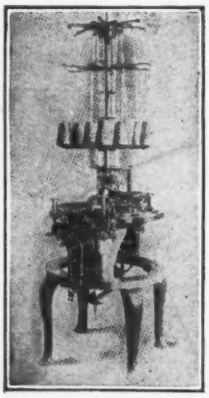


SHOWING the application of the Merrow Butted Seaming Head to our No. 4 Opening, Sewing and Re-rolling Machine . . . Produces a strong, flat butt seam on cotton, silk or other piece goods . . . trims off waste edges of goods just in advance of stitching operation . . . The Merrow Butted Seaming Head can be applied to your present machine . . . *write for estimate of cost.*

DINSMORE MFG. CO.

See also CONSOLIDATED TEXTILE CATALOG

SALEM, MASS.



SWEATER MACHINE

Sweater *and* Toque Machinery

We announce to the knit goods trade that both our new Latch Needle Sweater and Toque Machines, after severe and protracted tests, have proven unqualified successes.

Sweater machines knit plain, half, and full cardigan, stripe, rack and have separating course.

Toque machines automatically stripe three colors on ribbed fabrics.

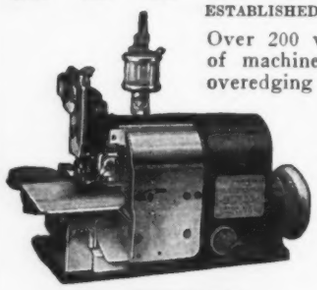
TOMPKINS BROS. CO.

SYRACUSE, N. Y. See also CONSOLIDATED TEXTILE CATALOG

Established 1846

MERROWING

ESTABLISHED 1838



Over 200 varieties and modifications of machines for trimming, seaming, overedging and ornamenting all sorts of fabrics.

Special machines for Flat-Butted-Seaming ends of piece goods, saving cloth and labor in subsequent processing.

Let us show results on swatches of your own fabrics.

MERROW

TRADE MARK REG. U. S. PAT. OFF.

See also CONSOLIDATED TEXTILE CATALOG

THE MERROW MACHINE COMPANY

14 Laurel St., Hartford, Conn., U. S. A.

A PLATFORM FOR AMERICAN BUSINESS

A Statement of Underlying Principles with some Practical Suggestions to Guide in Planning Future Progress

PRESENTED BY McGRAW-HILL PUBLISHING COMPANY, INC.

THE BUSINESS DEPRESSION of 1930 was no mere passing episode. The appalling loss and suffering entailed have struck home the more forcibly because they followed a period of unparalleled prosperity in a country that still possesses vast wealth and abundant resources. As a result of its duration and severity, the depression has shocked business, governmental and social agencies into commendable activity for the relief of human suffering and distress.

But, what is more significant for the future, it has also aroused an insistent demand for a searching analysis of the weak spots of the business and economic systems under which such a calamity was possible. It is an encouraging sign that men are beginning to question whether these recurring periods of boom and depression are not preventable; whether it is possible under better management to insure greater security to all classes of people who are willing to work; whether their faith in American achievement and standards of living can be preserved.

Evidence is multiplying that these questions can be answered in the affirmative; that this challenge to the American business and economic systems can be met in such a manner as to justify our confidence in them. Instead of regarding business depression as a storm to be weathered or a condition that must be endured and allowed to "work itself out," thinking men are beginning to look upon it as an economic plague that can be averted and wiped out by preventive measures. Sentiment is stirring in favor of doing something about it, heeding the warning of our latest experience and preparing actively to meet the issue it raises.

It is the responsibility of the business press to crystallize constructive policies and to encourage progressive leadership. Therefore, the McGraw-Hill Publishing Company desires to do its part in helping to clarify the situation and to stimulate thought and action. It believes in the philosophy of individual enterprise and cooperative effort on which American achievement has been based. And it has confidence in the ability of American management to recognize and adopt sound economic principles as a basis for constructive business policies. But it is equally certain that only by conscientious effort on the part of each business unit, large or small, can American business as a whole return to normal and pursue a steady course.

PLANNING IS ESSENTIAL for uninterrupted progress. To assist in such a program the McGraw-Hill Publishing Company offers through its publications the following principles and practical suggestions as a guide in formulating individual plans. They are not presented as a ready-made formula for success, but as a foundation on which business can be built with some protection from the shocks and dislocations that have plagued it.

GENERAL OBJECTIVES

The following general objectives are fundamental in planning sound business developments:

1. Maintenance of Established Standards of Living

The belief that there is danger of a general overproduction of wealth, that technical development necessarily involves unemployment, or that standards of living cannot be indefinitely increased is an economic fallacy. American business should not yield to it in any of the policies it pursues. Rather it must protect and preserve our economic standards and social traditions by maintaining high purchasing power and regularity of employment and dividend disbursements, based on more stabilized methods of management and financing made possible by long-term planning.

RECOMMENDATION: Conserve and add to the gains achieved in the past ten years through technical advance, improved forms of industrial organization and methods of management, and new devices for financing industrial and market expansion. Increase efficiency in the economic production and distribution of goods and services so as to facilitate their widest possible consumption and thereby raise the standard of living of the American people.

2. Stabilization of Future Business Growth

So long as there are wide fluctuations in business and in price levels, the gains to some groups are cancelled by losses to others and there is no net gain to the country as a whole. The interests of the speculative and creditor groups should be subordinated to the interests of those concerned with the production and distribution of goods and services. The latter should have a larger measure of leadership in business policy to insure sound and lasting prosperity.

This leadership can be exercised only by a more deliberate process of long term planning and organization for the direction and development of business operations. Such effort involves market analysis, sales control, product development, modernization of factory and office methods, foresight in purchasing, long-term financing of fixed capital requirements and a stimulated program of capital investment in 1931 for the restoration of business volume. All this must be supported by broader policies of coordination within the industry or trade, cooperation with labor and participation in the organized development of regional and national resources.

RECOMMENDATION: Direct individual and organized effort to check excessive and unbalanced industrial and financial expansion, and prevent wide changes in price levels. This will remove the incentive to speculative gain, avoid conflict of creditor and debtor groups, and promote confidence in long-term investment and borrowing. It will also encourage productive and commercial enterprise, maintain a steady increase in consumer purchasing power and stabilize business progress.

3. Promotion of International Business Cooperation

The world is economically interdependent. Though the United States is the dominant factor in world prosperity, she cannot maintain or increase her own prosperity indefinitely without sharing it with the world, nor can her business system survive unless, by sharing its benefits, the other nations of the world can preserve their faith in it. This calls for a more active policy of international cooperation on the part of American business to assist in the gradual reduction or removal of unnecessary trade barriers that interfere with the natural exchange of goods and services between peoples, the development of a more stabilized international mechanism for the movement of capital and control of credit, and the revision of war debts and reparations.

RECOMMENDATION: Support individual or organized effort to promote cooperation among business and financial interests of the United States and other countries, in order to facilitate the normal international movement of goods, services and capital, and there by enhance economic stability at home and elevate standards of living abroad.

4. Encouragement of Private Initiative and Responsibility vs. Extension of Governmental Activity

American business should encourage self-government. It has already shifted enough of its responsibility and thereby yielded enough of its initiative to government and must stand its ground against further extension of governmental action in matters in which it can assume responsibility itself.

The essential function of government is to keep clear the field of economic activity for private business initiative and to assure a basis of fair and equal competition in domestic and foreign trade. It should refrain from competing with any kind of business itself. It should facilitate and encourage the development of necessary controls upon business through organized self government. It should safeguard the economic stability of the country by maintaining stability in its own fiscal and international policies. It should reduce to the minimum the number of laws affecting business.

RECOMMENDATION: Oppose governmental regulation, control or expenditure which tends to limit or weaken private individual initiative or cooperative effort, or to diminish the responsibility of the individual business concern or organized industry, for the accomplishment of the objectives stated above.

RESPONSIBILITY FOR ACTION

This course of action for (1) the maintenance and elevation of American standards of living, (2) the stable development of American business, (3) the promotion of international cooperation and (4) the restriction of governmental encroachment upon private initiative and cooperative effort cannot be carried out without the earnest participation of individuals and organized groups representing all types of business and industrial activity.

Upon the following major groups the main burden of responsibility rests:

A. Industrial and Business Management: A few thousand business concerns in this country employ the bulk of the wage-earners, originate most of the consumer income, and produce the chief part of the goods and services that determine the standard of living. Upon the management of these concerns therefore rests the main responsibility for action that will:

(1) Formulate long-term plans for research, production, distribution, purchasing and financing.

(2) Support cooperative effort through industrial, trade and commercial organizations.

(3) Maintain wage scales that permit a high standard of living and purchasing power.

(4) Maintain and equalize employment by adjustment of working hours.

(5) Establish a reserve to protect the security of employment in times of reduced production.

(6) Establish and maintain stable prices.

(7) Maintain reasonable, stable dividends, conserving surplus accumulated in periods of prosperity for such use in slack times.

B. Industrial, Trade and Commercial Organizations: The power of business units is multiplied and their leadership is strengthened by vigorous, intelligent and far-sighted trade organizations. Through them it is possible to carry the foregoing principles into action on an industry-wide basis, which is necessary to their realization in each industry as a whole and to the even balance among all industries requisite to stable progress. They should cooperate in:

(1) Collection of data on costs, stocks, production, potential productive capacity and market conditions.

(2) Interchange of credit information.

(3) Development of codes of practice.

(4) Establishment of standards of employment salaries and wages within the industry.

(5) Development of opportunities for stabilizing business.

(6) Study of market development.

(7) Economic development and use of natural resources.

the project through without interruptions. (Some companies charge such appropriations to capital account just as they do the cost of a patent or a new building.)

C. Carry this long term planning into sales control, involving distribution methods, sales forecasting and pricing.

Sales Control

(1) Revise present methods of distribution and service to conform to the best interests of the customer. (*Example*—establishment of retail stores by mail order houses.)

(2) Prepare sales forecasts by products and by markets with regard to competition. (Leading institutions have found that modern sales forecasting can be correct within 2 to 3% for a year ahead and within 5 to 15% for three years ahead.)

(3) Know costs and stop selling at a loss. Maintain firm minimum prices based on production costs. (Business history shows a high degree of prosperity among those companies, large or small, which have had the courage to stand on a minimum price that insured a profit.)

(4) Plan sales organization, sales program and advertising on at least a three-year basis.

D. Plan for uniform production as far ahead as possible on the basis of sales requirements already determined.

Production Modernization

(1) Modernize and replace every existing production facility, including plants, factory and office equipment and methods where it is possible to effect cost reduction and greater production flexibility. (Stores, banks, and offices have a production problem no less than factories.)

(2) Do not expand production facilities in the mere hope for lower costs through larger production, but only where the long term forecast shows the necessity for additional facilities.

(3) Base purchase of materials, supplies and equipment upon the marketing and production program for the three-year period and make purchases as far ahead as practicable.

E. Stabilize financing. Working capital requirements for labor and material, and business capital requirements for development and expansion, can be determined with reasonable accuracy for a period ahead by long term planning.

Financial Policies

(1) Do not depend permanently upon bank credit for purposes other than short-term loans for current working capital. (In the interim partial payment financing of equipment, etc., is widely accepted as sound business practice.)

(2) Raise needed fixed capital requirements by bond or stock issues whenever reasonably advantageous.

(3) Invest surplus in short-term commercial paper or good bonds rather than employing it in call money or for purely speculative purposes.

Many of America's soundest corporations have adopted these financial policies.

A CHECK SHEET of Practical Suggestions for Planning a Company Program

I—Long Term Planning of Business Operations

A. Definitely abandon the yearly period as the basis for business operations, except in accounting matters.

(1) Project business policies and planning, wherever possible, upon a three-year period or longer as a unit.

B. Initiate research from the customer's standpoint to determine:

Analyzing the Business

(1) To what extent established lines should be replaced, improved or simplified.
(2) What additional markets can profitably be penetrated with these lines.
(3) What new products can logically be added for present and new markets.

Appropriations made for this research should be distributed over a long enough period to carry the project through without interruptions. (Some companies charge such appropriations to capital

Business cannot return to normal until there is put into circulation for one year an additional amount of money equivalent to approximately $300 per employed person over the amount spent in 1930. If individual business initiative is to assume the responsibility of returning the country to normal then each employer must accept his quota. Where the volume of business does not warrant this increase in the form of operating expenses, the money may be placed in capital expenditures—modernization, research for development, new patents, etc.

B. Each business enterprise has a responsibility to aid in the development of regional and national resources.

Development of National Resources

(1) Encourage and cooperate in the coordination and promotion of the economic area in which you are located through constructive programs for the improvement of agricultural, commercial, industrial and community development. (*Example*—New England Council.)

(2) Assist in the work of national associations devoted to the improvement of business ethics, the promotion of higher standards in the commercial, industrial, financial and political administration of the country, and the simplification of the laws governing business. (*Example*—Chamber of Commerce of the United States.)

IV—Maintenance of World Business

Probably the greatest potential market for present and future American products lies in that foreign field represented by the present difference between the living standards of the American public and those of a billion and a half people in many other countries. Any slight increase in the living standards of these vast populations will bring immediate benefits to American manufacturers, as the largest producers of those commodities contributing to labor saving and luxury.

A. Support cooperative studies and formulation of world policies among business interests through international business organizations on such subjects as—

International Business Cooperation

(1) World tariffs.

(2) Trade discriminations.

(3) International movement of capital.

(4) War debts and reparations.

B. Promote uniformity in foreign trade practice by encouraging coordination among organized industries.

II—Coordination with Industry or Trade

A. The success of long term planning for an individual business is multiplied and secured when similar policies are established throughout the industry.

(1) Aid in the establishment and share in the active development of an industry, trade or commercial organization —

(a) to collect data on costs, stocks, production, potential productive capacity and market conditions.

(b) to interchange credit information.

(c) to develop codes of practice.

(d) to take full advantage of legal trade cooperation.

(2) Cooperate to establish standards of employment, salaries and wages within your industry. (Labor is particularly susceptible to advantages offered by a business where long-term planning gives stable employment.)

III—Promotion of National Prosperity

A. The net profits of a modern business depend not only on its own activities but on sustained business stability throughout the country. There is a vital responsibility upon each business enterprise to do its share to provide national stability of purchasing power through —

Stabilization of National Purchasing Power

(1) A policy for employment.

(a) Establish a minimum payroll based on the planned program of production and sales and consider this minimum payroll as a fixed charge on the business. (*Example*—the Procter & Gamble plan.)

(b) Maintain a salary and wage scale that permits a high standard of living and thus of purchasing power.

(c) In slack periods, preserve the organization of trained personnel by reducing hours of work per man rather than reducing number of employees.

(d) Set up a reserve to protect the security of employment in times of reduced production.

(2) A policy for dividends.

(a) Resist the temptation to pay out excessive sums in dividends in boom times. Rather place excess earnings in reserve and do not hesitate to use this reserve in slack times to maintain national purchasing power through dividend disbursements. (*Example*—U. S. Steel Corp. policy.)

(3) A policy for 1931 expenditures.

Business cannot return to normal until there is put into circulation for one year an additional amount of money equivalent to approximately $300 per employed person over the amount spent in 1930. If individual business

C. Banking and Financial Institutions: Next to the will and intelligence of individual and organized business, the most important factor in achieving the four objectives of this platform is the understanding and cooperation of the banking system in checking excessive inflation in times of prosperity and excessive deflation in times of depression. In the exercise of this function, business itself may well expect banking and financial institutions to:

(1) Require business management to think in terms of long-time planning where financial assistance is provided.

(2) Encourage corporations to accumulate substantial reserves in good times to be used in slack times for development and dividends.

(3) Discourage the extension of excessive credit in periods of unusual prosperity and in like measure facilitate legitimate credit in times of stringency.

(4) Assist in the promotion of mergers where real benefits can be obtained but oppose the merging of corporations for stock selling purposes.

(5) Lead in the development of international financial cooperation.

D. Labor: Stability of industrial and business operations requires a sympathy by American workers with the policies expressed in this platform, and a willingness to cooperate in making them effective. Responsibility rests upon labor as well as upon management if the worker is to enjoy the benefits of our business system. To this end labor should actively support these principles:

(1) That increased wages are dependent upon increased efficiencies in production and distribution.

(2) That business must be conducted profitably if labor is to enjoy higher standards of living.

(3) That employers operating on a program of long-time planning provide the maximum stability of employment.

(4) That labor should demand of their leaders an understanding of sound business principles.

(5) That the welfare of labor will best be served by recourse to arbitration and the avoidance of industrial strife.

(6) That the development of international trade is essential to domestic prosperity.

(7) That the extension of governmental activity hampers business in assuming its social responsibilities.

E. Government: The essential function of government is to keep clear the field of economic activity for private business initiative and to assure a basis of fair and equal competition. It can best promote sound economic development through these policies:

(1) Refrain from competing with any kind of business itself.

(2) Encourage the development of the necessary control of business through self-government rather than by legislation.

(3) Safeguard the economic stability of the country by maintaining stability in its own fiscal and international policies.

(4) Exercise the greatest economy in public expenditures.

(5) Reduce to a minimum the number of laws affecting business.

(6) Cooperate with foreign nations for the fullest development of international trade.

AND IN CONCLUSION

THESE RECOMMENDATIONS can have value only as they are applied in the planning of individual company operations and in the programs of those industrial, commercial, financial and governmental agencies that are responsible for the conduct of our economic affairs. But taken broadly they constitute a platform of economic principles and business policies upon which far sighted management may well make a stand.

New conditions of our modern industrial civilization have laid new social responsibilities upon those men who guide the destinies of business enterprise. The protection of the welfare of workers and their security of employment and the assurance of permanent income to investors have become basic factors in the attitude of public opinion towards industry. And public opinion in the end has the power to preserve or to curtail that freedom of initiative around which the whole philosophy of American life has been organized.

Business management must meet the call of these responsibilities, therefore, if the people of the world are to be lifted out of the present depression and given assurance of greater stability of earning power in the future. Business leadership itself must strengthen and secure the success of this system of private initiative and cooperative effort upon which the prosperity of this country has been founded and of which it stands today as practically the sole exponent.

This proposed platform is being presented to American business through McGraw-Hill publications reaching into nearly every major industry in the country. It will be developed and interpreted editorially as a guide to the formulation of individual plans and business policies.

AS A FURTHER AID in that direction the reader will find within this supplement a check sheet of practical suggestions. Many of them are known to be practised by successful, well managed business concerns. It is believed that they will be of value and assistance to all American businessmen in planning for future progress and prosperity.